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The THERAPEUTIC GAZETTE

INCORPORATING

MEDICINE AND THE MEDICAL AGE

A Monthly Journal of Practical Therapeutics

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ORIGINAL COMMUNICATIONS.

THE GENERAL PRACTITIONER AND OBSTETRICS.[1]

BY EDWARD P. DAVIS, A.M., M.D., F.A.C.S.,

Professor of Obstetrics, Jefferson Medical College, Philadelphia.

Is the condition of obstetric practice at present satisfactory to the general practitioner of medicine, and if it is not, what are the reasons for this dissatisfaction, and how can a better state of affairs be secured?

The ultimate aim of the profession under all circumstances remains the same—the good of the patient. If obstetric practice at present gave satisfactory results to mother and child in the hands of the general practitioner, then there would be little or no cause for suggesting change; but it is significant to note that in spite of antiseptics and anesthetics the maternity mortality and morbidity of labor has not materially lessened for years. In the list of civilized nations the United States of America stands fourteenth in maternity mortality and morbidity. The greater number of obstetric cases are in the hands of the general practitioner of medicine, and with these results it cannot be said that the state of obstetric practice at present can be satisfactory to him.

Many general practitioners of medicine frankly admit that their obstetric work is a nuisance. It interferes with their practice, taxes the strength and patience, and is very inadequately remunerated. Many general practitioners would gladly give up obstetric work if it were not for the fact that while attending the mother of the family in her confinement they secure the medical and minor surgical work of the entire family.

Economic factors have much to do with this condition of affairs. Before the recent war human life was the cheapest of commodities. A man would willingly pay to have a tumor removed from the body of his wife, hoping and believing in the majority of cases that the tumor would not return, but the same man would willingly pay very little to have a child removed safely from the body of his wife, knowing that other tumors like this would very likely develop. But the recent war and its accompanying conditions through the enormous loss of life have greatly increased the value of human life and especially the lives of children. Hence to-day the profession is in a better position than ever before to demand and secure a better compensation for obstetric work.

So much of obstetrics is surgical that to do it well one must have the necessary training and experience, the apparatus, instruments and assistants necessary for good surgical work. Unless one is to make a specialty of obstetrics in large part, the investment sufficient to secure these advantages seems scarcely profitable. The laity do not understand or appreciate the value of aseptic technique in the management of labor. A young physician, recently from hospital, was summoned to a confinement, and taking with him what he had devised as the least elaborate equipment, he proceeded to clean and sterilize some basins which he had brought and to arrange his equipment in as efficient a manner as pos-

[1] Read before the Clinical Society of the Philadelphia General Hospital.

sible. The husband seemed somewhat impressed by this, but finally remonstrated, saying to the doctor that he need not go to all this trouble, which he thought would increase the cost of the case, because "This was only a confinement case."

What suggestions can be offered indicating how the results of obstetric practice in the hands of the general practitioner of medicine can be greatly improved, with due regard to the rights of the profession?

First, and important, is the campaign of education with the laity. They must be taught the fact that abnormal confinement is as important and dangerous to the patient as a case of appendicitis, strangulated hernia, rupture of the bowel, or ovarian tumor. When this is acknowledged the next step naturally is to the hospital, for it is rare for the surgical treatment of serious conditions to be undertaken at home.

And here a word of acknowledgment is due to the general practitioner of medicine who for so many years has been doing obstetric work under the greatest possible disadvantages, without skilled assistants, with meager equipment, and often in the most unfavorable surroundings. These men, single handed, have undertaken obstetric procedures which should enlist the services of a skilled anesthetizer and several assistants and nurses. Their results have been remarkably good under these circumstances, but this work has been done under a tremendous physical and mental strain, with a prodigal expenditure of energy and in a way exceedingly unjust to the practitioner of medicine. In justice to the general practitioner of medicine better ways must be found for caring for his work.

Obstetrics as a specialty and the hospital seem to us to afford a reasonable remedy. In every town of considerable size in the country having good roads there is room for one or more men who thoroughly equip themselves to do good obstetric work. Such men would have access to the nearest hospital, to which they would send confinement cases to be under their care. Good roads, motor cars and the multiplication of hospitals make it comparatively easy to transfer obstetric cases to hospital rooms and wards. The State authorities of health should see to it that each hospital in the State provides accommodations for maternity cases and thus that each resident physician obtains obstetric experience. The price to the patient of such accommodations should be kept as low as possible, and under these conditions a large part of obstetric practice will naturally go to hospitals. The home is thus relieved of the disturbance and increased expense incident to a confinement at home, and for the patient greater safety and comfort are secured.

Obstetricians practicing in cities are enabled to do thorough work through team work. Thus in one instance in one of the smaller cities of the country an obstetrician employs constantly a skilled anesthetizer and two assistants to accompany him to each case. In towns and villages the general practitioner of medicine is not prepared to perform obstetric surgery successfully, and here the obstetrician must be summoned for complicated cases from the nearest available point.

This introduces the old feeling of jealousy and distrust between the general practitioner and the specialist. The general practitioner hesitates to call in a specialist, fearing lest he lose his hold upon the family and be discredited. This is especially true in obstetric practice, where complicated cases are often retained by the general practitioner until a successful issue for mother and child has become impossible. The obstetrician is often called to the funeral of the fetus and is fortunate if he succeeds in saving the life of the mother.

The general practitioner of medicine, especially those living and working in smaller towns and villages, does not appreciate the fact that he has one of the most interesting, important and lucrative specialties of medicine, that of diagnosis. The fate of the patient often rests with the man who sees her first, and this man is usually the general practitioner of medicine. In obstetrics the family doctor first in the confinement may by an erroneous diagnosis lose the life of the child and sometimes that of the

mother. If the general practitioner of medicine could appreciate the fact that it is more to his interest to transfer a complicated confinement to adequate hands and have it do well than to hold on to it until a partial or complete failure results, conditions for patient and physician would be vastly improved. A bad result in obstetric practice is widely noticed by the laity and receives abundant adverse comment, and such a calamity is especially to be avoided by the general practitioner.

The needs of the nation demand that the health authorities secure for parturient women ample hospital care, and that all hospital staffs should include a sufficient number of obstetric specialists. All hospitals should give to their residents and nurses obstetric training. The price of hospital accommodations for such patients should be kept as low as possible. Social service, community service and visiting nurse service in village, town and city should render all possible aid in maintaining the home while the mother is in hospital for confinement.

The specialist in any branch of medicine has no wish or desire to encroach upon the field of the general practitioner of medicine. He may often envy the general practitioner of medicine, whose wide field of observation and diagnosis, extensive acquaintance and broad-minded sympathy with the community in which he lives bring him not only abundant opportunities for observation, but also wide-spread esteem and professional honor. The general practitioner who is a skilful diagnostician becomes the trusted friend of his community and its adjacent country. If obstetrics can develop properly as a specialty with abundant hospital facilities the general practitioner of medicine will be relieved from much unsatisfactory and onerous work, and the lives and health of mothers and children will receive far more successful and better care.

CLINICAL APPLICATION OF OUR PRESENT-DAY KNOWLEDGE OF BLOOD COAGULATION.*

BY VINCENT ANTHONY LAPENTA, A.M., M.D., INDIANAPOLIS, INDIANA.

The control of hemorrhage, whether originating from a violent solution of continuity of the blood-vessels or through erosions of vascular areas by disease, complicated or not by disturbances of the coagulability of the blood itself, has been an object of intense clinical importance. Often a physician, after a laborious clinical supervision of a tedious typhoid case, has been robbed of the fruits of his labor by a profuse intestinal hemorrhage, which overwhelmed the last residuum of energy of the already much debilitated patient, and just as often a skilfully performed operation has terminated fatally, instead of being crowned with success, by a severe hemorrhage, either due to hemophilia or to the inaccessibility of the bleeding area to mechanical means of control.

*Read by invitation at the meeting of the Delaware-Blackford Medical Society, in Muncie, Indiana.

It is self-evident that the clinician is called upon to employ to the highest degree, in control of hemorrhage, the very means and forces naturally inherent in the blood, by which nature endeavors to prevent the loss of this medium of life's vital processes.

A short review of the evolution of blood-coagulation studies, that have finally culminated in the present-day rational doctrine, may not be out of place. I shall of course limit myself to a brief exposition of the subject, in order to remain in the limits of a clinical paper, avoiding doctrinal and technical descriptions, which would only interest the physiologist and the physiological chemist.

Luciani,[1] in his monumental physiological work, very aptly describes these studies as the most difficult and intricate of physiological chemistry. The rational study of this subject can be said to have begun with

the pioneer work of Alex Schmidt.[2] His rather crude theory has well served as the basis for the more advanced studies by many investigators the world over. Alex Schmidt succeeded in separating in an impure state the ferment which initiated the cleavage of the fibrinogen molecule into the insoluble fibrin of the blood-clot.

This substance was called fibrin ferment by Schmidt, and is the equivalent of thrombin, the name now in more common usage.

Any theory of coagulation that would fail to take into consideration the intravascular fluidity of the blood would be untenable.

If the blood contains a ferment capable of transforming fibrinogen into insoluble fibrin, the fluidity of the blood is mysterious. Numerous hypotheses were formulated to account for the phenomenon. Durante[3] assumed that the living endothelial lining of the vascular system prevented coagulation and that any injury of this lining would lead to coagulation *in situ*, as evidenced by thrombosis and embolism. The conception contained a grain of truth, as we shall see later.

Researches extending through many years established that the ferment thrombin does not exist as such in the circulating blood, and that it is present as a mother substance proferment or zymogen, conveniently designated as prothrombin. Schmidt, and later Carbone,[4] Ducceschi,[5] and Lilienfeld,[6] assumed that prothrombin was converted into thrombin by the action of Ca-ions. To this conclusion they arrived by the indispensable rôle played by calcium in the coagulation. This other grain of truth led to the fallacious theory that calcium was the agent capable of transforming the proferment in the necessary ferment and that by increasing the content of calcium in the blood we could influence its coagulability at will. The fallacy of this view was quickly established by the work of Sabbatani,[7] proving that, while a certain concentration of calcium was indispensable to the several transformations, the proferment had to undergo a change before it could act on the fibrinogen, that a decrease or an increase of this Ca-ion constant would result in incoagulability of the blood. This explains to us the therapeutic nullity of calcium administration in disorders of coagulation. The cases due to calcium deficiency are extremely rare, the living organism being almost under all conditions able to maintain the equilibrium of its mineral constituents; whereas it is unable to do so in the case of such products as extremely labile giant molecules, enzymes, antitoxins, etc. These are involved in metabolic processes of life, with the bewildering array of complex products, the composition and structure of which we are able to approach only relatively and superficially.

Calcium by itself cannot convert prothrombin into thrombin. A third substance is necessary, and it was found that in shed blood it was furnished by the breaking down of the platelets of Bizzozero and leucocytes. The escape of this substance initiates the interaction of prothrombin and Ca-ions, resulting in the formation of thrombin. The greatest contribution to the elucidation of the rôle of this third substance was derived from the labors of Morawitz,[8] which we have been able to confirm. Morawitz designated this substance "Thrombo-kinase," to illustrate its action in releasing the forces concerned in thrombin formation.

While this shows us the process of thrombin production, we have as yet to fully explain the fluidity of the blood in the vascular system.

Nolf assumed the presence in the blood of a substance capable of neutralizing thrombin, which he called antithrombin. We have succeeded in isolating this substance and found that while it destroyed thrombin, it had no action on prothrombin, so we feel warranted in assuming it prevented the interaction of prothrombin calcium and thrombokinase, in this manner becoming capable of preventing the formation of thrombin and of neutralizing it when formed.

It has been suggested that thrombokinase

acted also by destroying or binding antithrombin.

In a complex process like the coagulation of blood the observation that a certain agent induces coagulation easily leads the occasional investigator to formulate theories based on slender facts.

When this suggestion was subjected to experiment, we found that thrombokinase does not destroy thrombin, but that it is possible to elaborate a substance having this function, which we designated as anti-antithrombin.

It then became very evident to us that an ideal agent, designed to combat the various disorders of blood coagulation and to accelerate this process, when desired, should contain:

First, prothrombin to increase the thrombin factors.

Second, anti-antithrombin to bind the antithrombin, or to destroy its vitiating effects.

Third, thrombokinase to accelerate the coagulation process.

These three substances, held in colloidal solution, in a medium or a small amount of serum in NaCl solution, compose the agent known as hemostatic serum (hemoplastin).

DISORDERS OF BLOOD COAGULATION.

Before discussing the various indications of hemoplastic serum in medical and surgical practice, it may be well to say a few words about hemophilia.

This interesting disorder, with its remarkable hereditary transmission, has interested the profession from the most ancient times. The most prominent agent recommended for its treatment was calcium. The results obtained were generally very indifferent, and this was not understood until the recent coagulation studies in hemophiliacs established the fact that hemophilias due to calcium deficiency are exceedingly rare. In our own studies we have been able to divide the hemophiliacs into two classes, as follows:

1. Patients whose prothrombin thrombokinase coefficient was normal or nearly normal, but whose blood contained an excess of antithrombin, thereby inhibiting thrombin formation.

2. Patients exhibiting no increase in antithrombin content, but exhibiting a remarkable deficiency in prothrombin.

As stated above, the disorders of coagulation due to calcium deficiency have been found to be very rare. But even in these cases we have never failed to find a deficiency of prothrombin. This has seemed to us very significant.

The indications of hemostatic serum in these conditions are too evident to require further elaboration of the subject. In what other condition, other than in the hemorrhagic diathesis, can this product be of service? Obviously it must display beneficial effects in all those conditions that are favorably influenced by an increased coagulability of the blood.

Let us briefly consider a few of these indications. Owing to the fact that tissue repair is primarily dependent upon the coagulation of lymph, in order that the fibroblasts may initiate the production of fibrous tissue, it seems evident that this agent will be found of value, not only in the treatment of hemorrhage, but also in hastening wound healing and tissue repair in general. Its employment in nose and throat surgery, cranial operation, bone surgery, prostatectomy, hysterectomy, and all surgical procedures where the loss of blood is of considerable importance, is now well established. It not only diminishes mortality by saving of blood, but it enables the surgeon to do better and quicker work, without having to contend with innumerable bleeding points, excepting due to the severance of vessels of considerable caliber.

In epistaxis, hemoptysis, and hematemesis, hemostatic serum has rendered valuable service. If its use is continued after hemorrhage is controlled it will materially aid in the healing of the lesions causing the hemorrhage, owing to the added stimulus given tissue repair by the increased coagulation of the blood. Based on these contentions a number of clinicians have been using hemostatic serum in cases of incipient pulmonary tuberculosis, hoping to

stimulate a quick fibrosis of the lesions, thereby producing a physiological cure. Unfortunately I have had but a very limited opportunity to try it in incipient pulmonary tuberculosis, and I do not feel that sufficient time has elapsed to express any opinion on the good results reported from its employment. A short time ago Messrs. Parke, Davis & Co. submitted to me a number of enthusiastic reports received from many clinicians throughout the country, commending the use of hemostatic serum (hemoplastin) in the early stage of bronchopneumonia. It was sought by the use of this agent to limit the exudation of lymph in the bronchioles, thereby materially limiting one of the pathological factors. In this instance also I felt unable to express an opinion, feeling that these questions cannot be answered by the elaboration of any theory, and that its verdict lies only in the mature judgment of clinicians after careful study over a sufficient period of time.

How much therapeutic use may be made of our ability to increase the coagulability of the blood, outside of its legitimate field, in the control of hemorrhage in hemophilia and in surgery I dare not say. To the clinicians of the future I freely give the honors of furnishing the answer. I shall satisfy myself to humbly affirm the excellent services this agent can render the surgeon in the treatment of hemorrhage, thus giving him a firmer mastery over one of the two obstacles of surgery, pain and hemorrhage; and hemorrhage is truly an obstacle second only to pain.

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(In this synthetic review are quoted 490 papers, by various authors, on blood coagulation.)

PYORRHEA ALVEOLARIS.[1]

BY R. SHAWE TYRRELL, M.D., L.R.C.P. Lond., Toronto, Canada.

In the *Boston Medical and Surgical Journal* of February 13, 1919, there is a short article by Dr. McNulty in which he states that "alveolitis dentalis is an error of metabolism, focusing its expression in and about the alveolus dentalis." In this statement I consider that he has brought into the light a most valuable fact in regard to medicine proper, and if he had carried his contribution a little farther into practical details, I would not have thought it proper to offer any criticism. When he also says that "saline balance is essential to body well-being, and a disturbance of the salt balance may be an important contributing causative factor in the nutritional error called interstitial gingivitis," I entirely agree with him, and consider that soda in some of its combinations is not in sufficient quantity in the blood to combine with the uric acid.

Now we know that the urine, in these cases of alveolitis dentalis, generally contains excessive deposits of the biurate of soda, or if it does not we find a defect in the eliminating power of the kidneys, which in either case I contend means the circulation in the blood of the biurate, and by its irritating properties sets up inflammatory

[1]We are by no means sure that the author is correct in his views as to the cause of the condition, or the manner in which the results are reached, but publish his paper because he gets results whatever his explanation of the method of obtaining them may be.—Ed.

actions and deposits in many parts of the body including the gums (gingivitis).

To make this short article practical, the treatment ought to be, in my opinion, purely medical, and not combining any surgical procedure whatever, unless a soft toothbrush, with a little weak soda water for cleansing the mouth, be considered surgical.

Whenever I come across a case of pyorrhea, I take for granted that the biurate of soda is the cause and order a two-grain tablet of calomel and soda every night for a week, taking care that the dose is carried away the next day. (It is better, however, provided the bowels act daily, not to disturb the action of the calomel and soda by saline draughts next morning.) I then, at the same time, acting on the authority of Langdon Brown, order fifteen grains of the salicylate of soda three times daily, for the purpose of eliminating the biurates in greater quantities by the kidneys. In this way, and by putting my patient, for a short time, on a diet of cereals and milk, I succeed in getting the blood free from the irritating salts, when the gums will become healthy and normal and the alveolar deposits absorbed by the salicylate of soda circulating in the saliva.

I would not be giving my entire experience if I stopped here, for just as sure as the biurate of soda is not prevented from accumulating in the blood, so surely must we expect a recurrence of the pyorrhea; hence to prevent this disturbance in "salt-balance" it is often necessary to order a two-grain tablet of calomel and soda once a week, and see that the patient gets plenty of soda in his food, and frequently as well to order twenty grains of the salicylate of soda in a tumbler of water at bedtime.

I have said that in some cases the eliminative power of the kidneys is defective, causing the biurate to collect in the blood. If this power has been destroyed to a great extent, and the pathological condition not remediable due to interstitial changes, etc., then our hope of keeping a patient entirely free from pyorrhea is not very bright, but moderate degrees of these changes need not deter us from being optimistic in the majority of cases.

THE TREATMENT OF COUGH AND EXPECTORATION AS PRACTICED BY GERMAN PHYSICIANS.

BY CHARLES GREENE CUMSTON, M.D., GENEVA, SWITZERLAND.

Cough is a pathologic symptom met with in the majority of respiratory processes. The Huns admit that when one has a case of bronchitis to treat, and which is aggravated by an irritating and painful cough, it is of absolute necessity to examine the patient thoroughly in order to ascertain the origin of the trouble.

In what is to follow it has been the endeavor of the writer to give a rather detailed account of the treatment of cough and expectoration at the present time by the German physicians, and he shall leave his American confrères the task of deciding what may be good or bad. No comments are therefore offered, and only facts are given. The writer has also retained the metric system in prescribing, believing it to be the only scientific way of introducing drugs into the human body.

The Hun also insists upon taking the temperature in cases of bronchitis, and he likewise is persistent as to an examination of the abdominal functions in order to discover, if possible, the onset of tuberculosis (!) or one in full evolution. The cough may also be symptomatic of a cardiac affection or of pulmonary stasis, not forgetting that it may be an index of some acute general infectious process. Thus it may be seen that the Hun is quite up to date, according to our American standard.

There is no indication to control the cough of pulmonary tuberculosis by sedatives, and the unfortunate habit of resorting to opium preparations should be decried.

If a carefully conducted physical examination, combined with other well-known tests, reveals a pulmonary tuberculosis, the Hun is of the opinion that the patient should not be allowed to remain in doubt as to the true nature of his affection. For the treatment of pulmonary tuberculosis Americans are so far ahead of the Germans that it would be a waste of time to dwell on this subject.

Let us now see what the Hun can do for influenza. The patient is made to sweat by a bath at 42° C. (107° F.), in which he remains for five to seven minutes. This, according to the Germans, has a favorable effect on the affection, particularly when large doses of brandy are exhibited, or port wine in its stead. After July 1 we in America cannot resort to the last beneficial therapeutic measures. The Germans are of the opinion that the hot bath and alcohol prevent the development of the fatal pneumonia of influenza, since this treatment favors expectoration, and should cardiac failure become added to the clinical picture, digitalis is likewise added to the treatment, so that in many instances other medication becomes useless.

Naturally, in cases of febrile bronchitis hot baths and sudation can be employed, and in every case the patient must remain in bed for several days.

In bronchitis from stasis resulting from a weak cardiac action, the Hun mind has discovered that the stasis cannot be eliminated by hot baths, and that cardiac medication, combined with carbonic acid baths, is the real thing. They revert to that overrated institution—Nauheim—as the proper place for these cases.

In dry bronchitis of tuberculosis or influenza, in which hot baths are without effect, and where it seems necessary to diminish the irritative process producing the cough, one should resort to codeine, pantopon, heroin, or dionin, all of which possess a much less toxic action than morphine. Here are two formulæ:

℞ Dionini, 15 centigrammes:
Aq. amygdal. amar., 10 grammes.

M. S.: Fifteen to twenty drops three times daily.

℞ Potass. bromid., 15 grammes;
Codeinæ phosphat., 3 centigrammes;
Aq. dest., 150 Cc.

M. S.: A dessertspoonful to be taken in the evening.

As pantopon can be dissolved in the proportion of 2 centigrammes to 10 Cc. fluid it may be thus prescribed. In children dionin or codeine may be given in the dose of 10 centigrammes in 100 Cc. of syrup of altheæ, a teaspoonful to be given at bedtime.

In insomnia due to prolonged coughing a very excellent combination is dionin 2 centigrammes, sodii diethylbarbitur. 35 centigrammes, for one powder, to be taken at bedtime. The Hun also advises the use of the good old English troches of Irish moss, licorice, etc., hot demulcent drinks, or hot milk to which Ems water is added, to be taken in the morning. To those of my countrymen who desire to avoid German products after peace has been signed, I can in all sincerity advise in place of Ems water, which is unquestionably excellent, the Swiss water of Birmensdorff, which chemically and therapeutically possesses the same qualities as the German water.

The treatment of cough naturally only tends to produce a paralysis of the reflexes on the one hand and an easy expectoration on the other. Here the Huns use chloride of sodium or ammonium or ipecac, likewise substances containing saponin, such as senega and quillaja. The effect of these medicaments is due to the fact that they eliminate the "yellowish masses" which are found covering the bronchial mucosa. Besides, they produce a watery hypersecretion containing the alkaline carbonates. The latter liquefy the compact mucus rich in mucin, thus resulting in an easier elimination of the mucus.

Therefore, one is here dealing with an irritation of the bronchial mucosa, which is more prone to increase than otherwise the irritating process of cough in pulmonary tuberculosis, where the mucosa is hypersensitive. Usually the practitioner is content in these cases to prescribe mild sedatives or the above-mentioned medications. Never-

theless, one may resort to ammonium chloride, often with excellent results. As is known, the iodine compounds are often useful in asthmatic conditions, and by liquefaction of the secretions adherent to the bronchial tubes, relieve or cause to disappear both the dyspnea and expectoration. The following formulæ are used in Germany to obtain these desired results:

℞ Sodii iodid.,
Liq. ammon. anisat., ää 5 grammes;
Aq. dest. ad 150 Cc.

M. S.: A dessertspoonful in milk after the three principal meals.

℞ Sodii iodid., 10 grammes;
Aq. menth. pip. ad 150 Cc.

M. S.: A dessertspoonful thrice daily.

℞ Decoct. cort. quillajæ, 5:180.0;
Syr. simpl. ad 200 Cc.

M. S.: Dessertspoonful every two hours.

℞ Infus. rad. ipecac., 0.5:180.0;
Syr. altheæ ad 200 Cc.

M. S.: Dessertspoonful every two hours.

Inhalations have also their indication for the cough of bronchitis and tuberculosis, as they are sedative and render expectoration easier.

In acute affections of the respiratory tract in children the treatment should be above all symptomatic. Hot baths followed by enveloping in hot dry sheets produces sudation, and often very excellent results will be obtained by these means in a short time. The Germans employ "pectoral teas," composed of marshmallow, linden leaves, etc., likewise hot milk and Ems water. When there is peristent insomnia codeine is ordered:

℞ Codeinæ, 10 centigrammes;
Syr. altheæ, 100 Cc.

M. S.: A dessertspoonful at bedtime.

℞ Pulv. ipecac., 10 to 20 centigrammes;
Liq. ammon. anisat., 1 Cc.
Syr. simpl., 10 Cc.
Codeinæ phosphat., 2 centigrammes;
Aq. dest. ad 100 Cc.

M. S.: Teaspoonful every two hours.

℞ Ammon. chlor., 3 grammes;
Suc. liquirit., 5 grammes;
Codeinæ phosphat., 5 centigrammes;
Aq. dest. ad 100 Cc.

M. S.: Teaspoonful every three hours.

When the cough is asthmatic in type, particular attention should be given to hot applications. Ems salt to be given in the morning in hot milk should be prescribed during one month. The iodides are also indicated:

℞ Potass. iodid., 5 grammes;
Aq. menth. pip. ad 100 Cc.

M. S.: Dessertspoonful three times daily.

Sensitive respiratory organs, especially with an asthmatic tendency, in children are frequently a symptom of the exudative diathesis in relation to general weakness, which is manifest in the scrofulous habit. In these subjects cod-liver oil with phosphorus and salt baths are of first importance, combined with life in the open, fat inunctions, and syrupus ferri iodidi.

By these measures, when systematically applied, children will often develop astonishingly well (according to the Germans) and the bronchial catarrh and asthmatic symptoms disappear. Good results will also be obtained by solar rays or artificial solar rays. In children, as with adults, there are certain climatic factors which play a part, and a stay in high altitudes or at the seaside will often work wonders. But the cough and asthma return when the subject returns to his former abode.

In the treatment of asthma in adults the iodides still are foremost, their principal effect being to liquefy the secretions and thus render expectoration easy. The following may be ordered:

℞ Potass. iodid., 5 grammes;
Liq. ammon. anis., 5 Cc.
Aq. dest., ad 150 Cc.

M. S.: A soupspoonful in milk three times daily.

In place of this to relieve spasms:

℞ Atropin. sulph., 5 centigrammes;
Acid. arsenic., 10 centigrammes;
Quinin. hydrochlor.,
Ext. gentian., ää 5 grammes.

Ft. pil. no. 100.

M. S.: One pill three or four times daily.

Some German writers are high in their praises of electric-light baths, which Strümpell employs in chronic bronchitis. The exhibition of camphor, or tinct. lobelia (frequently combined with digitalis), is indicated as cardiac tonics, which possess a

favorable action on the pulmonary circulation and elimination of the bronchial secretions. One may prescribe:

℞ Tinct. lobeliæ,
Tinct. digitalis, āā 5 Cc.;
Aq. laurocerasi, 10 Cc.

M. S.: Twenty-five (25) drops every hour during paroxysm.

N. B.—The cherry-laurel water may be replaced by tinct. valerian.

℞ Pulv. scillæ, 30 centigrammes;
Codeinæ phosphat., 3 centigrammes.
Sach. alb., 50 centigrammes.

M. ft. pulv. D. in fol. dos. no. XV

M. S.: One powder three times a day.

The fluid extract of quebracho is sometimes useful given in the dose of fifty drops three times a day. On account of their vasotonic effect the following will also facilitate expectoration in asthma: inhalations of stramonium leaf cigarettes or the vapor of pyridium puriss. (one teaspoonful to be allowed to evaporate at the room temperature). Extract of hypophysis in tablet form may be indicated in some cases.

Kraus of Berlin gives the following at the outset of a paroxysm:

℞ Antipyrini, 80 centigrammes;
Sodii salicylat.,
Caffeinæ, āā 20 centigrammes.

M. pulv. no. i.

The Germans often employ ichthyol pills, each containing ten centigrammes of the drug, from one to three pills being taken three times a day. We would also say that the Germans prescribe erythrol tetranitrate in the dose of 3 centigrammes and scopolamine in the dose of 3/10 milligramme three times daily in tablet form; also nitroglycerin in the dose of one-half milligramme three times daily. The following formula is said to rapidly control the paroxysm:

℞ Ext. hyoscyami, 25 centigrammes;
Morphin. hydrochlor., 3 centigrammes;
Aq. laurocerasi ad 15 Cc.

M. S.: Ten to fifteen drops at the onset of the paroxysm.

No advance in the treatment of whooping-cough has been made in Germany during the war. The profession still cling to tussol, pertussin, syr. droserin, and a liniment containing the same drug. Bromoform inhalations are still in vogue, and the two following formulæ are resorted to:

℞ Quinin. hydrochlor.,
Antipyrini, āā 2.5 grammes;
Aq. dest., 75 Cc.;
Syr. ipecac. ad 100 Cc.

M. S.: A teaspoonful three times a day (Heubner).

℞ Potass. bromid., 7.5 grammes;
Ammon. bromid., 5 grammes;
Aq. dest., ad 200 Cc.

M. S.: A teaspoonful three to five times daily (Liebermeister).

LATENT SINUSITIS.

In the *Journal of Laryngology, Rhinology and Otology* for July, 1919, WATSON-WILLIAMS after general remarks and discussing two illustrative cases concludes:

That a latent sinus infection may persist for a great many years. When one remembers that an infected sinus is an ideal physiological culture tube, provided polynuclears are inactive, the varying virulence of the infecting organisms corresponds with the variations in the symptoms due to systemic infection.

That chronic rheumatoid arthritis and other infective rheumatic symptoms may be due to a sinus infection.

That appendicitis may be due to infection through the gastrointestinal tract from a nasal sinusitis. A large percentage of chronic sinus cases have suffered from appendicitis, but though he believes a nasal sinusitis is not rarely the source of the appendicular infection, he does not suggest that this is the usual source.

That a very copious or thick purulent discharge may be sterile, whereas a thin, opalescent or almost colorless discharge may yield a free growth of pyogenic organisms on culture.

The previous history of nasal sinusitis cases is worthy of careful note.

He suggests that some cases of systemic septic infection attributed to tonsillar infection may be due to a nasal sinusitis, which has caused the tonsillar infection with hypertrophy of the tonsillar lymph-tissue structures.

EDITORIAL.

FRUIT JUICES AND SCURVY.

It is the irony of fate that whereas scurvy was the curse of armies and navies in the early part of the last century and interfered seriously with the successful prosecution of war and commerce, it should have been eradicated from soldiers and sailors only to occur with frequency amongst artificially fed infants. It is also a curious fact that the scorbutus of infancy is more frequently met with among the children of the well-to-do than among the poor, probably because the latter, by force of circumstances or inadvertence or ignorance, permit their offspring to obtain other articles of food from the table, thereby establishing a nutritional balance which saves the child.

The swollen, tender gums, the loss of power of the lower extremities, the pain in the back when the child is moved, are all very characteristic of infantile scorbutus, and it is wonderful what beef juice and orange juice given to such children will produce in the way of improvement, the child grasping these foods with avidity, as if it instinctively knew their value for its condition.

Our attention has been called to this matter once more, not in connection with infantile scorbutus, but because of a discussion in the *Journal of the Royal Army Medical Corps* upon the efficacy of lime juice for the prevention of scurvy. This article has some bearing upon infantile scorbutus as well as scurvy in adults, the more so as it has been recently pointed out by other writers that canned tomatoes can be used with advantage in the prophylaxis of scurvy.

A large part of the article that we refer to is historical in nature, reviewing the outbreaks of scurvy in various celebrated expeditions and pointing out how lime juice was finally discovered to be such a preventive and cure that it was ordered for all ships going on long voyages.

The most important point in the paper, however, is that lemon juice was soon found to be equally efficacious with that of limes, and it is stated that recent experiments have demonstrated that the antiscorbutic value of the fresh juice of the lime is only one-fourth that of the fresh juice of the lemon. This seems to be partly due to the fact that the limes have to be picked and the juice preserved at a certain time in order to get their full value. Indeed, it would appear that in a number of instances in which expeditions have been provided with lime juice very severe outbreaks of scurvy have nevertheless occurred. It would further appear that different species of limes possess different powers, and it has also been found that fresh malt or germinated barley, air dried, can be used for the prevention of scurvy, given stirred up in fresh infusion or in beer. This was known as early as the latter part of the eighteenth century. The writer of the article referred to, therefore, insists that the use of lime juice to prevent scurvy in expeditions should be put aside and the fresh pure lemon juice should be employed. If this precautionary measure is adopted scurvy need never occur in arctic service.

As the limes from the West Indies have been particularly lacking in antiscorbutic value, they are to be avoided if limes are to be used at all. In other words, the lime juice which was shown to be so efficacious one hundred and fifty years ago is now almost worthless because it is derived from the sour lime of the West Indies, and it is thought the so-called lime juice of one hundred and fifty years ago was really the juice of lemons. In trying to get the real thing the substitute has proved to be the best thing.

YEAST AS A SOURCE OF FOOD.

We think that few of our readers in the past have looked upon yeast, either in the form employed by the brewer or the baker, as being essentially a foodstuff. Some may have gone so far as to recognize that investigation has revealed it to be rich in vitamines, and therefore have recognized that it possesses nutritional properties, but comparatively few know that it contains a large amount of nitrogen which can be advantageously utilized by the body, so that a few cakes of yeast per day are equal in value to a considerable amount of ordinary foodstuff.

As the result of a research published in the *American Journal of Physiology*, Hawk, Smith and Holder write an interesting article upon "Baker's Yeast as a Food for Man." They point out that it contains important amino acids and publish an analysis of the composition of the yeast employed by them, showing that dry yeast has at least three times the calorific value of beef of moderate fat content. Furthermore, that dried yeast is readily digested and utilized by the animal organism, which has been proved by other investigators, and that Völtz has gone so far as a result of his investigations as to claim that it is one of the most digestible foodstuffs.

In the research of Hawk and his colleagues they point out that metabolism experiments in the past have been few. Funk, it is true, with his associates, experimented upon four men who were fed a diet in which yeast was the sole source of protein. His results did not seem to be very encouraging, but the studies made by Hawk, Smith and Holder, which were more thorough and accurate, are interesting and valuable. They studied the metabolism of six men and found that four of the six showed an improved nitrogen balance when fed a yeast diet, and, further, that this yeast diet produced an average daily gain of about 0.4 gramme of nitrogen per man above that noted before yeast was fed; the interpretation being that these men found yeast a satisfactory article of diet.

A notable difference between this research and that of Funk is that Funk used yeast as a sole source of protein, whereas Hawk and his associates substituted yeast for only a certain amount of protein—9 to 29 per cent. They used a varied diet and so approached conditions more nearly akin to those which are found under ordinary circumstances.

One of their methods of feeding the yeast was to dry it and to incorporate it in biscuit or bread. They found that when ordinary yeast was eaten more than three cakes of Fleischman's yeast was prone to produce a mild diarrhea. They think that one, two or three cakes can be used without this complication. Possibly the most important point they make in this connection for the average patient is that they were able to dry, bake, or boil the yeast, so as to kill its enzyme, without materially modifying its nutritional properties. The yeast may be taken stirred up in milk or in orange juice, baked in bread, or given by any means which seems convenient. Their patients' diet consisted of meat, wheat biscuits, jelly, margarine, potato chips, crisco, corn-starch, agar agar, and water.

We have not the space to give in detail the nitrogen balances or other minute points in regard to their investigations, but they conclude that baker's compressed yeast forms a very satisfactory article of diet for man. When incorporated with meat, such as Hamburg steak, it yields a product of very satisfactory taste. If it be dried in a current of air at 105° C. and pulverized it may be substituted for 20 per cent of the wheat flour used in bread making. It yields a product which is very nutritious and of attractive flavor. Further, they assert that 10 to 30 per cent of the nitrogen of an ordinary mixed diet may be replaced by yeast nitrogen in the form of compressed yeast without impairment of the best nutritive interests of the individual. They even go so far as to claim that they have demonstrated that the nitrogen of yeast is preferred by the nutritional mechanism of certain individuals to the nitrogen in the form of such staple foods as wheat and

meat. The average individual seems to be able to ingest enough yeast to yield from one to two grammes of nitrogen a day without any laxative effect.

In four of their six subjects it was found that the diet containing yeast was more satisfactory than a diet which did not. Four of these made gains of from one-half to three pounds of body weight in a test of two weeks, but the other two showed a loss.

Closely connected with this matter is another paper in the same issue of this journal by Hawk, Fishback and Bergeim on the "Influence of Compressed Yeast as Food for the Growing Organism." In this instance 32 white rats were used, instead of human beings, as subjects. The details of these experiments need not be quoted, but their conclusions are that the addition of compressed yeast to a diet not containing the water-soluble vitamines causes an immediate and pronounced increase in body weight, and that this increase is more rapid and pronounced when the diet contains casein than when the protein of the diet is furnished by lean meat.

They also found that compressed yeast heated to 105° C. did not lose its growth-promoting properties, and as the yeast fungus was killed there was no disturbance of the bowels.

ETHER AS AN ANESTHETIC IN HOT CLIMATES.

It has been considered for many years that the great volatility of ether renders it disadvantageous as an anesthetic in tropical regions, and this is one of the reasons why chloroform is so universally employed in the tropics. Another reason is that those who live in the tropics take chloroform better than northerners, either because climatic conditions produce some state of the body which renders them relatively immune or else because ventilation is so much better that chloroform intoxication to too great a degree does not so rapidly occur.

Our attention has been called to this matter by a paper contributed to the *Indian Medical Gazette* by Holroyd, a captain in the Royal Army Medical Corps. He is an advocate of the safety of ether as compared to chloroform. He tells us that he was informed that chloroform was the only anesthetic that could be used in India on the ground that ether evaporated too quickly, and it was, therefore, impossible to keep the patient under. His experience, however, has led him to believe that this conclusion is erroneous. He believes that ether can be given in India quite as well as the other anesthetics. He speaks of using it in Bombay, where the atmosphere is moist, and also in up-country stations where the atmosphere is very dry and the temperature over 120°. He also believes that there are many cases and conditions in which pure chloroform is not only unsuitable but absolutely dangerous; as, for example, sepsis and anemia, constitutional or due to hemorrhage. He thinks that chloroform is particularly prone to produce acidosis in the presence of sepsis, and that ether does not cause this complication. He admits, however, that the anesthetic which he has used mostly is a mixture of chloroform and ether, 1 to 15, preceded by morphine 1/6 and atropine 1/150 half an hour before the operation. The patient's face is covered with a layer of tissue, in the center of which is a hole large enough to expose the nose and mouth. A mask of sixteen layers of gauze is then placed on the pad. A few drops of cologne are dropped on the mask to get the patient accustomed to breathing a foreign vapor, and then the mixture named is dropped on the mask very gradually until tolerance is reached, after which time it should be applied as quickly as possible as there is no advantage in prolonging the induction.

Holroyd claims that complete anesthesia is usually reached in four minutes—that is to say, unconsciousness is produced at this time. He then passes a tube of about the size of a No. 8 catheter through one nostril whereby he avoids the use of tongue forceps and the mouth gag. That is, he insures a free airway. He believes that

this method is very advantageous, and that the administration of the ether should be continued by constant dropping of the mixture and not by haphazard dosage with periods of rest between. After the patient is once anesthetized, pure ether is used to maintain anesthesia.

In Holroyd's experience the condition of the patient during the induction of anesthesia and during operation is entirely satisfactory. Recovery is rapid, vomiting is rare, and bronchitis absent.

HANDS IN RELATION TO PUBLIC HEALTH.

Incident to one or more vivid articles contributed by those with the gift of clear and forcible expression, much public and professional attention has recently been drawn to the question of the hand as a disease-bearing agent. One, and perhaps a minor, method by which the hands may thus act has been unduly accentuated, the suggestion having been made that the centuries old custom of greeting by a shake of the hand be discontinued, its place being taken by a nod of the head or perchance a respectful sucking in of the breath or genuflection, or other motion or sign which might indicate an underlying friendly feeling.

It was not until the intrinsically filthy nature of even the mechanically cleansed hand was recognized that surgery came to its own. Nor can there be any doubt but that by the agency of this member transmissible disease not only occasionally but habitually is carried from one to the other. That the usual method of this transmission is by hand shaking is open to a reasonable doubt. And even with the hand shaking abolished as a custom and penalized by law, it is probable that there would result no appreciable diminution in the incidence of the transmissible diseases. It is quite certain, however, that there would be a diminution which would be reflected in morbidity and mortality statistics, were the technique of hand cleansing for ordinary purposes taught and enforced in public schools, and made habitual by the population at large. This technique theoretically may be that of the surgeon for the performance of an operation; practically it will be the thorough mechanical cleansing of the hands with soap and clean water always practiced before the taking of food, especially of that introduced into the mouth by the fingers, and the scrupulous avoidance of carrying to the mouth either the fingers or anything which they have directly touched. Nor would such a technique seem more difficult to make a habit than that, for instance, of cleansing the teeth morning and night and after each meal.

The unthinking may see but one side of this subject, and some of them may become converts to a belief in what has been held forth as the major cause of hand infection—*i.e.*, shaking hands. We should remember that every door-handle we turn, strap we hang to, public library book we read, note or coin we receive has been handled by thousands of hands, all of them filthy and many of them bearing the germs of the transmissible diseases. The method of eliminating transmission by the hands lies then essentially in the universal, frequent and efficient washing with soap and water and keeping the hands, or anything they touch, from the mouth, since it is only when the hand infection is carried to the nose or mouth that it becomes operative.

In this relation the use of a chlorine disinfectant of such nature as not to prove irritating to the skin should be distinctly helpful. Dichloramine-T answers admirably and continues its antiseptic action for many hours. Moreover, in its oily solution it keeps the skin soft, save in those who have an idiosyncrasy against chlorine.

The incidence of exanthemata among schools is undoubtedly due in part to hand transmission, not from shaking hands, which is a custom honored in the breach by the children of polyparous parents, but by the sharing of food eaten by the finger, the communal use of the same pencil, the handling and mauling of each other, and the evil habit of constantly carrying the

filthy hands to the face, lips, and mouth. Attention directed to the hands as the source of disease is serviceable. The accentuation of the hand shake as the most important means of transmission is likely to divert attention from the major issue.

ORTHOPEDIC TREATMENTS IN NEUROLOGICAL CASES.

Not until the resultant effects of the widely spread epidemic of poliomyelitis directed general attention to this useful combination did the profession at large awake to a knowledge of the orthopedic surgeon, or at least the application of orthopedic principles as an integral part, in attaining the optimum of function in practically all cases of motor palsy and in many cases of muscular incoördination. When one group of muscles is paralyzed its active antagonistic group contracts, and by that very contraction lessens any chance the paralyzed muscles have of recovery. Moreover, the weight of the limb will produce stretching of ligaments and joint displacements and unfavorably change the prognosis of a case, in which this originally was guardedly favorable, to one of utter hopelessness. This with the lapse of time and the absence of proper orthopedic treatment.

It is in relation to this subject that Boorstein (*American Journal of Surgery*, July, 1919) contributes a paper showing the neurologist the help that the orthopedist can bring in the treatment of many of the deformities and the disturbed muscular balances that come under his care, basing his contribution upon a large hospital experience.

Barker regards muscular tonus as an ever continuous feeble state of contraction in which the voluntary muscles are maintained during life.

This tonus appears to be maintained largely by afferent stimuli coming from the muscles, tendons, fascia and periosteum to the spinal cord, where the impulses are transferred to the lower motor neurons, stimulation of which contracts the muscles concerned. The intensity of the tonic innervation is dependent not only upon the innervation in the lower reflex arcs, but also upon favoring and inhibiting influences arriving from higher neuron systems within the spinal cord and brain. The tonus is, therefore, increased in certain muscles where the pyramidal tract is injured.

Both the orthopedic surgeon and the neurologist examine for the normal motion of the muscles, active and passive, with and without resistance, though the latter frequently calls the electrical apparatus to his aid, while the former never resorts to it. Abnormal motility may be manifested by paresis (or hypokinesis) when there is only a partial inability to perform active movements; in such conditions the neurologist is probably better equipped for the diagnosis, while the orthopedic surgeon is more competent to help restore normal function and particularly to prevent the muscles from being overused.

When there is total inability to perform active movements it is known as paralysis or akinesis. This group is well known, both the flaccid variety, when the tonicity of the muscles is less than normal, as in anterior poliomyelitis, and spastic conditions, when the tonicity is greater than normal, as in spastic paraplegia. They should be treated by the orthopedic surgeon, though the neurologist still holds tightly to them.

There are cases that present involuntary contractions (or hyperkinesis) due to motor irritation, either through increased physiological stimuli or through pathological irritation of the motor neuron system. The orthopedic surgeon meets very often muscular spasm that is really pathological, permanent contraction arising reflexly through purely quantitative increase of physiological stimuli.

Synkinesia, or associated movements, are at times observed—*i.e.*, on moving one limb the other may move; for instance, in hemiplegics the good hand will close while attempting to close the paralyzed one. This phenomenon may be utilized in giving ex-

ercises to hemiplegics by ordering them to move both sides simultaneously.

Continuous contraction as a response to stimuli known as "tonic" should receive orthopedic attention, as this state responds rapidly to the application of plaster casts and braces.

When the contraction is rhythmical or intermittent, it is called "clonic."

Under this head of hyperkinesis come also the occupation cramps, as writers' cramp, piano-players' cramp, etc.

Another phenomenon of disturbance of motility is that of coördination, varieties of which can all be grouped under one heading, "ataxia."

While the orthopedic surgeon may be able to examine roughly the muscular action, the neurologist can better tell even where only paresis exists. The outline for neuromuscular examination, suggested by the American College of Surgeons, can be advantageously used in such cases.

As far as treatments are concerned, a few general rules can be laid down:

A partially weak muscle should be guarded against stretching and overuse. This will frequently help to restore normal function and also prevent further damage. Rest even in braces and plaster should be carried out for a long time. The value of this rule is seen in the treatment of anterior poliomyelitis, polyneuritis, peripheral nerve surgery, diphtheritic paralysis, myasthenia gravis, etc.

It is of cardinal import to prevent deformities. This is more important in the neurological cases, as in purely orthopedic cases the orthopedic surgeon always guards against them. Mechanical corrective measures should be used more often in cases of dystrophies and myopathies than has been the custom.

Braces and plaster should be used freely in all neurological cases, though they cause atrophy which the neurologist dreads so much. Many of the disadvantages in incurable diseases can be avoided altogether, or progress of the diseases may be checked.

Plaster must be applied with greater care than in ordinary orthopedic cases, as usually the sensation is diminished and the hypertonicity is generally severe. There may, therefore, more often develop pressure sores which will be resistant to treatment.

Braces, massage and exercises should be used where there is even only slight hope of improvement, as the cases in neurology are very rare in which these methods are harmful.

Hydrotherapy, thermotherapy, phototherapy and heliotherapy are freely employed in such cases, while electrical treatments, except the Bristow coil, appear to be valueless to the orthopedic surgeon.

The use of orthopedic supports in hysterical cases requiring psychoanalytic methods must be discriminately guarded against, as this may increase their attention to the abnormality. Their use, however, is justified in cases in which organic disease existed and the patient has not regained full self-reliance. Such will aid them in recovery—*e.g.,* in tabes, where a plaster cast on the knees may be of benefit.

The forms of adult hemiplegia, whether due to embolism, thrombosis, or apoplexy, are well known, yet how seldom does one try to prevent the development of these disabling deformities. It is taken as a matter of course that they cannot be prevented and once developed cannot be improved. Even the text-books on neurology do not emphasize enough the necessity of avoiding contractions. Some do mention that splints should be applied, but its importance is not impressed upon the reader, nor are the details of application given. Even such an extensive system as "Modern Treatment of Mental and Nervous Diseases" does not put much stress on this principle.

Not only in the early stages can the contractures be remedied, but even in old and neglected hemiplegics great improvement can be obtained. The principle used in anterior poliomyelitis can be applied here, and all the deformities can be prevented by the application of plaster splints or braces as early as possible, even on the second or third day. In hemiplegia it is still more important to apply the support so early because of the rapid development

of hypertonicity of certain muscles. The stretching of the antagonistic muscles is therefore greater than in anterior poliomyelitis.

For the lower extremity, the plaster cast is extended to the perineum with the foot at right angles to prevent talipes equinovarus. The knee is put in full extension to guard against contraction and also against hyperextension. The hand is put in hyperextension at the wrist-joint and flexion at the metacarpophalangeal joints. The elbow is kept in straight or semiflexed position, as the tonicity of the elbow flexors is great. The casts are changed on the tenth day for removable ones when massage, exercises, etc., are started.

It may be worth while to mention that the famous orthopedic surgeon, Hoffa, distinctly recommended the use of splints in hemiplegic paralysis of the leg, compensating by elastic bands for the deficient flexion of the knee and the dorsal flexion of the foot.

It is gratifying to note the benefit obtained by the simple methods which have been so helpful in anterior poliomyelitis but which are seldom applied to the hemiplegics. In the old and neglected hemiplegics the deformities are first corrected.

In administering massage, the author made use of the experiments and conclusions of Oden, applying effleurage for the contracted or spastic muscles, while for relaxed and atrophied muscles petrissage and tapotement were resorted to. In early cases the author began massage in the third week, though Bucholz urges earlier massage.

Regarding the time to commence exercise in early cases, there is a variety of opinion. H. Oppenheim discourages early movements, waiting six weeks. Others begin earlier. In reality no specified time can be given, each case being considered individually in relation to its sensitiveness, and the amount and character of the contractures. Boorstein began with five to ten minutes daily and increased to fifteen minutes twice a day.

Electrical treatment is of little benefit and perhaps even harmful, as it will increase the tonicity.

All the principles used in anterior poliomyelitis can be applied to polyneuritis and diphtheritic paralysis.

As to tabes dorsalis, though the disease is incurable, it has been shown that application of braces or plaster casts to the knees makes the patient feel so much more certain that the gait is improved and the occurrence of fractures is prevented. One must remember that the tabetic is uncertain of the position of his limbs and is therefore afraid to walk, and the brace gives him security. It is hard, however, to prevail upon a tabetic to wear a plaster cast.

Birth palsy, or what is commonly known as Erb's palsy, has only lately been referred to the orthopedic surgeon.

If we could get the cases early, say at the first or second week, and treat them as we treat anterior poliomyelitic cases, with supports to guard against further injury and stretching, good results might be anticipated.

Those conditions diagnosed until now as sciatica are of course mainly conditions arising in the sacroiliac joints, and many of these incurable patients have been relieved as if by magic by the simple application of a sacral compressor.

Many of the pressure symptoms due to an enlarged transverse process of the last lumbar vertebra have been cleared up by the removal of the offending transverse process.

To quote Abrahamson about primary myopathy: "Those who are confined early to chairs do far worse than those in whom locomotion is possible. Where a weakness of the spinal muscles incapacitates the patient proper braces or supports are important, and these will do much to arrest the spread of the disease. Massage and passive movements are important. Overexertion must be carefully guarded against. Where contractures exist, tenotomies can be used. Tendoplasty and tendon transplantation are of little value. Shortening of tendons is rarely of service. Use splints to

prevent contractures. Nerve transplantation is useless." Seldom is the orthopedic surgeon consulted. The neurologists are still forgetting these principles, and these patients are allowed to become worse.

Progressive muscular atrophy develops frail joints which should be protected by braces, etc. Abrahamson states: "A skilled orthopedic surgeon is able to overcome many of the disabilities and render possible a considerable amount of exercise by the patient himself."

REPORTS ON THERAPEUTIC PROGRESS.

COMPLICATIONS OF INFLUENZA WITH NOTES ON THEIR TREATMENT.

HENDERSON, in the *Glasgow Medical Journal* for May, 1919, states that antipyretic drugs, such as aspirin, phenacetine, quinine, sodium salicylate, and salicin, were all tried separately, and in various combinations, and after a time the fact seemed to emerge that a combination of the first three gave most general relief. The drugs were employed in the dosage of six, four, and two grains respectively, and the combination was given four times daily at the onset, in most cases thereafter. The further treatment is expectant or symptomatic, but much may be done to relieve the troublesome symptoms and to combat the complications.

The distressing and troublesome cough always offers a serious problem for the physician. As this commonly arises from catarrh of the whole of the upper respiratory tract, local measures are often beneficial, and undoubtedly the application of antiphlogistine, or the homely poultice of linseed, alone or with mustard, to the upper chest or throat gives great relief in many cases. This, combined with the use of a spray of chloretone and menthol (of each 2 per cent) in liquid paraffin, to the pharynx, was very successful. This spray proved much more beneficial than the well-known combination of menthol, eucalyptus, and benzoin.

Vomiting may call for special treatment, and, indeed, may be so severe as to call for absolute rest to the stomach, and rectal feeding. Tincture of iodine (1 minim in 1 ounce of water) given every hour for six hours proved successful in some cases, but not in others. The combination of bismuth, soda, and dilute hydrocyanic acid (2-minim doses) was often useful. Blistering over the epigastrium was resorted to in some cases, but at times all these measures failed, and only ice by the mouth with rectal salines, or rectal alimentation, was employed for a short period.

Sleeplessness is always difficult to deal with in febrile diseases, but in influenza it is particularly so. Ordinary general measures fail, and drugs are required to secure sleep, more especially in those cases with pulmonary complications. As most of the drugs at our disposal for such a purpose are depressant and prejudicial to the heart, a selection is difficult. In the earlier stages, even where pulmonary complications appear imminent, a small dose of morphine may often be tried without grave danger, but it should never be employed unless in the early stages. The members of the trional group are all too depressant, and hyoscine seems to give such variable results as to render it unreliable. Paraldehyde in drachm doses, repeated if necessary, is always useful, though unpleasant; but as a standby in all cases, even in those with pulmonary complications, he used the ordinary combination of chloral hydrate (gr. xx) with ammonium bromide (gr. xxx). It is less dangerous, can be repeated, if necessary, and on the whole proved most reliable.

Hyperpyrexia, when present, calls for prompt and efficient action. In this condition, antipyretic or febrifuge drugs should be avoided, and some form of hydrotherapy should be employed. Fortunately,

thorough and systematic tepid sponging in many cases gives relief, but recourse to cold sponging, or even to cold pack, may be necessary. Cardiac failure is a special danger in such cases, and should be met by free stimulation (*vide* pulmonary complications).

In those cases with pulmonary complications Henderson makes it a routine to raise the patient's head and shoulders a little by an extra pillow from the outset, to give greater freedom in respiration. A fitted gamgee jacket was applied in all cases—a very useful adjunct, as by its aid one can keep patients in a free current of air without fear of chill. Local measures, as poulticing, are only valuable in the early stages, or for the relief of cough and pain. As a rule, owing to the prostrating effect of the original influenza infection, the physician finds himself face to face with an immediate call for stimulation. Cardiac failure threatens, and may occur very early, with but little warning. Any depressant drug must therefore be avoided. Stimulant expectorants may be useful, such as ammonium carbonate, but its value is doubtful, as it does not control the cough, and is, indeed, apt to be irritating in all but small doses. Combined thus with squills and senega it often does good, and, if considered necessary, digitalis and nux vomica (one or both) may be included. One soon found, in dealing with large numbers of cases, that the call for alcoholic stimulant was urgent, and that small doses of brandy or whisky, given at regular intervals from the outset of pulmonary symptoms, were beneficial. These doses may be increased as occasion demands. For further degrees of heart failure hypodermic stimulation must be employed. The use of strychnine (gr. 1/60 to 1/30) and digitalin (gr. 1/100) every four hours is valuable, and can still further be supplemented by the injection intramuscularly of camphor in oil (3 grains in 15 minims) four-hourly. These injections can be made to alternate, so that something is given every two hours, and this was the course adopted in all severe cases throughout the second part of the epidemic. The cyanosis, which is in many cases such a marked feature, can be combated with oxygen administered intermittently. This is best carried out by Haldane's apparatus, when it is obtainable, as the current can be easily and satisfactorily regulated, and considerable economy is secured where oxygen is being given over prolonged periods. The oxygen is warmed by passage through hot water or alcohol. By means of this apparatus, with the requisite number of tubes and masks, he has had as many as four cases in a bronchopneumonia ward receiving oxygen from one cylinder simultaneously. Where cyanosis is marked, with obvious laboring of the right heart, great benefit may often follow from venesection to 12 or 20 ounces.

It should be borne in mind that regular evacuation of the bowels should be secured in such cases. To accomplish this efficiently by drugs necessitates a great tax on the patient's already waning strength, and further is a matter of difficulty, as the bowel in most cases is in a state of paresis with atonic distention. For these reasons it is better to employ enemata every twenty-four or thirty-six hours, and so secure thorough evacuation of the bowel, with the minimum loss of strength to the patient. By this means the bowel is regularly freed of toxic materials. Small enemata should be employed. It is surprising how much relief an efficient enema can give to a patient with urgent dyspnea or orthopnea.

POLLEN EXTRACTS AND BACTERIAL VACCINES IN HAY-FEVER.

FRANK and STROUSE in the *Journal of the American Medical Association* of May 31, 1919, conclude that:

1. Specific therapy should not be undertaken in the presence of pathologic conditions in the nose or accessory sinuses. It has not been their experience that removal of polyps or similar operations has cured hay-fever patients, but it has been their experience that such operations may be neces-

sary if subsequent therapy is to be successful.

2. In a disease with the remarkable seasonal variations of hay-fever, it would be folly to attempt to draw definite or final conclusions from the work so far reported; but from the consideration of their own and reported results, they believe it is fair to say that the method of treating hay-fever patients by early prophylactic injections of pollen extract, combined with late and intensive injections of autogenous bacterial vaccines, offers the greatest therapeutic promise of any method so far advanced in the treatment of this disease. Pollen extracts alone and bacterial vaccines alone, while giving results, do not seem to relieve so many patients as does the combined therapy. Treatment with pollen extract should start early in the season (June or July) and should be discontinued at the height of symptoms, at which time bacterial vaccines should be substituted.

3. They have not found injections one year have prevented attacks the succeeding year, but they do note that in patients receiving continued treatment from year to year there is a definite tendency for the hay-fever symptoms to become progressively less severe.

ANTINEURITIC VITAMINE IN THE WHEAT AND CORN KERNEL.

VOEGTLIN and MYERS, in the *American Journal of Physiology* for May, 1919, state in their summary that:

1. The germ or embryo of the wheat and corn kernel contains all of the antineuritic vitamine of these cereals.

2. Wheat flour or corn-meal containing the germ is, therefore, more nutritious than the corresponding highly milled products.

3. Consideration of the distribution of the antineuritic substance in the wheat and corn kernel and in the animal body suggests that this accessory food is necessary for the metabolism of the growing plant as well as the animal body. It appears that cells with an especially active metabolism are also rich in antineuritic vitamine.

THE TREATMENT OF SYPHILIS IN TUBERCULOUS PATIENTS.

ELLIOTT in the *American Journal of Syphilis* for April, 1919, concludes that mercury should be used with great care in tuberculous patients, and that the deleterious effect is not immediate, but appears several months after the institution of administration of the drug, as was pointed out by Hartz. Therefore, arsphenamine (salvarsan) seems to be the drug of choice in such cases, but should be given in small doses at long intervals, inasmuch as the ordinary dosage accentuates active foci and is prone to cause a flare-up in latent lesions.

THE TREATMENT OF SYPHILIS.

CLARK in the *New York State Journal of Medicine* for July, 1919, gives the following details, and in view of a large army experience thoroughly recommends them:

On the morning of the day arsphenamine was given, freshly distilled water was obtained and a freshly prepared solution of 4-per-cent sodium hydroxide was made up. A simple gravity apparatus was used—a container, a rubber tube and needle connection. Straight needles were employed. The strictest sterilization was followed.

The arsphenamine ampoules were kept immersed in 95-per-cent alcohol. The drug supplied was from the Dermatological Research Laboratory. It was dissolved in hot distilled water. The greatest care was used to break up all lumps and to dissolve with the least possible commotion, so that the degree of oxidation of the drug was as little as possible. Solutions which were not clear and of a characteristically yellow color were discarded. To each decigram of arsphenamine 25 Cc. of water was used. For each decigram of arsphenamine to be neutralized 0.9 Cc. of the 4-per-cent sodium hydroxide was employed.

The rubber tube was filled with normal salt solution and the prepared arsphenamine solution was poured into the container through sterilized filter paper. The solu-

tion was allowed to flow into the vein slowly; at least fifteen minutes should be consumed in allowing a full dose to flow into the blood stream.

The preparation of mercury was 33 per cent of the salicylate in olive oil. This is given on the same day with the arsphenamine. A one-grain dose is approximately three minims, so that care must be used in so high a suspension, in giving the injection. The bulk of one dose is so small that little trauma, hence little pain, accompanies this form of mercurial medication.

In his series of cases there was only one with a suspicion of salivation. A dentist on the genito-urinary service who devoted his entire time to the patients is probably the reason for this. Of other complications, such as dermatitis or jaundice, there were none. These things are attributed to two reasons: the drugs used proved to be a good lot and the steps of the technique were carried out with the utmost care. All cases were followed with weekly Wassermann tests.

In summing up his experience with this formulated treatment in the early and uncomplicated cases of syphilis, and exclusive of the outspoken neurosyphilides, it can be said that the results have been most gratifying. The medical officer, once he launched his patient on this plan, was relieved of the burden of detail involved in setting the time of each succeeding treatment, and saved from the temptation of veering from one form of medication to another, which is so fatal to any harvest of useful facts.

From the standpoint of the patient it proved a peculiar blessing, for it carried a conviction that he was being driven the straightest of courses to the goal he was most anxious of anything else in the world to reach, and this was enhanced by the favorable progress all his neighbors in the same boat as himself were enjoying and which even to his untutored eye was plainly evident.

The course of treatment was interrupted in the event of dermatitis, jaundice, or other signs of intolerance supervening.

Each patient was carefully scrutinized for signs of stomatitis or general malaise, and his weight taken; his urine was tested before each injection and after it.

The scheme of arsphenamine dosage was based on 150-pound men—or one decigram to about 30 pounds of body weight.

	Arsphenamine (Intravenously)	Hg Salicylate 33% in Olive Oil (Intramuscularly)
1st day	grm. 0.3	grain 1.
6th day	grm. 0.4	grain 1.
11th day	grm. 0.4	grain 1.
18th day	grm. 0.6	grain 1.
25th day	grm. 0.6	grain 1.
32nd day	grm. 0.6	grain 1.
39th day	grm. —	grain 1.
46th day	grm. —	grain 1.5
53rd day	grm. —	grain 1.5

One month rest, then take Wassermann; if positive, repeat entire course; if negative, repeat the Hg alone.

At end of second course, rest two months, then take Wassermann and give third course in accordance with rule for second course.

During second year, if Wassermann is positive, repeat entire courses as above. If negative, give two Hg courses with four months between.

PROPHYLACTIC VACCINATION AGAINST PNEUMONIA.

In America, where vital statistics show that more persons die from pneumonia than from any other infection and that the rate is slowly increasing every year, the disease has naturally been the subject of very active investigation. In 1913 Douchez and Gillespie by serological methods established the now well known four types, I, II, III, and IV, of pneumococci, of which the first three are spoken of as fixed, though there are atypical forms of type II. As a practical outcome of this work a curative antipneumococcic serum against pneumonia due to pneumococcus type I has been successfully employed, but the immune serums homologous for the other types of pneumococcus have not proved effective. Somewhat different and more numerous types of pneumococci were soon after described in South Africa by F. S. Lister, whose work, probably because it appeared in a not very

accessible publication, has perhaps been rather overlooked. In addition he elaborated the prophylactic vaccination against pneumococcic infection among the native workers in the Rand mines, originated by Sir A. E. Wright before the various types of pneumococci were recognized. The good results obtained by Lister from prophylactic inoculation with a vaccine of the three types responsible for 69 per cent of the cases of pneumonia among the Transvaal natives were referred to in this journal more than a year ago.

More recently prophylactic vaccination against pneumonia has been extensively adopted in the army camps in America, and as a majority of the cases of pneumonia in civil life there are of the primary lobar type, which is the form most amenable to prophylactic inoculation, it is probable that there is a wide scope of usefulness before this means of prevention. Early in 1918 Cecil and Austin published the results of the prophylactic vaccination of 12,519 men at Camp Upton with pneumococcic types I, II, III. No cases of pneumonia due to these fixed types occurred among the vaccinated men, and the incidence of pneumonia due to pneumococcus type IV and of streptococcus pneumonia was much less in the vaccinated than in the unvaccinated troops. There were, however, two minor drawbacks about the process of vaccination. The first was the necessity, in order to obtain satisfactory protection, of giving three injections to men who had already received the triple vaccine against enteric fever, and ordinary vaccination against smallpox. The second drawback was the occasional appearance of small sterile fluctuating infiltrations at the site of injection, which appeared to be an expression of cutaneous hypersusceptibility.

In a report of a special commission appointed by the Surgeon-General to investigate the value of pneumonia vaccine at Camp Wheeler in Georgia, Cecil and Vaughan point out that these objections can both be obviated by the use of a lipo-vaccine, or an oily instead of a saline medium of suspension of pneumococci, on the lines of the antityphoid lipo-vaccine initiated by Le Moignic in France and subsequently adopted in the United States army. As the oily emulsion is absorbed more slowly than the saline, it is possible to give a single large dose without any fear of reactions. Eventually Whitmore, who applied this principle to numerous vaccines, including the pneumococcic, employed cotton-seed oil with 2-per-cent lanolin as less irritating than olive oil to the subcutaneous tissues, and showed that protective bodies do not begin to appear in the blood until the eighth day after vaccination. The dose of the lipo-vaccine is 1 Cc.; this quantity contains 10 billions each of pneumococci, types I, II, and III. This pneumococcic lipo-vaccine was given to 13,460 men, or 80 per cent of the strength, at Camp Wheeler in the autumn of 1918. Only 104 men, or 0.7 per cent, had a constitutional reaction necessitating admission to hospital, and 68 per cent of these were negroes, who seem more susceptible to the pneumococcic toxin, though they only numbered 22 per cent of the vaccinated. The local fluctuating infiltration at the site of injection was noted in 5 cases only, thus contrasting with its incidence in 152 cases at Camp Upton, where the saline suspension was employed.

The test of this pneumococcic lipo-vaccine turned out to be much more severe at Camp Wheeler than at Camp Upton, for not only were many of the troops raw recruits and negroes, instead of well seasoned soldiers, but an outbreak of influenza commenced about nine days after the administration of the protective pneumococcic vaccine was begun. For this reason 2226 recruits received in addition an injection of influenza vaccine (1 billion influenza bacilli). The results of pneumococcic vaccination, though not so striking as those at Camp Upton, were sufficiently encouraging to justify its further application in civil as well as in military life; and there was not any evidence that pneumococcic vaccination disposes the individual even temporarily to either pneumococcic or streptococcic pneumonia.—*British Medical Journal*, May 31, 1919.

FULGURATION FOR MALIGNANCY.

IREDELL and TURNER in the *Proceedings of the Royal Society of Medicine* for June, 1919, have this to say as to fulguration:

This method is the application to a cancerous area of a spark, produced by the ordinary high-frequency apparatus which is in common use. The apparatus is tuned up so as to give a spark which must be at least 3 inches long. The growth should first of all be removed as completely as possible by ordinary surgical means, and it is an important point that if masses of growth which can be seen are left an early recurrence is certain. It is desirable, though not essential, to connect the patient to earth by binding an electrode 3 or 4 inches square to the leg, and connecting it by a wire to a gas or water pipe. This prevents any bystander from getting a shock should he touch the patient. A cable from the top of the resonator is connected with the electrode, which consists of a wire mounted in an insulating handle. The spark is directed from the end of the wire to the surface of the wound. The best electrodes have a movable sheath of porcelain which can, if required, be pushed down for 3 or 4 inches over the point of the wire, thus forming a channel through which the spark can pass. This is most useful in all but shallow wounds. In fact, in deep wounds, it is impossible to direct the spark to the bottom of the wound without it, since the edges of the wound form the shortest path. Just as the lightning flash is very erratic in its course, so, to a less extent, is the fulguration spark, and for this reason the insulating sheath is of great assistance. Unfortunately, after two or three minutes, the spark makes the porcelain so hot that it cracks unless great care be exercised. It is therefore advisable to spark on to the more superficial parts of the wound without using the porcleain sheath, keeping this for the more inaccessible parts. The presence of moisture is important. While the spark will pass to any solid object that is not an insulator, and with some difficulty to substances which are insulators, no spark will pass if the electrode is brought near the surface of water, or even if it touches it. Practically, however, the spark will always pass to a surface which is moist, but it saves a good deal of trouble if the surgeon, by attention to hemostasis, makes the wound as dry as possible before commencing the fulguration. Otherwise much time is wasted in sponging. In our cases the duration of the electrical treatment has varied from ten to twenty minutes according to the extent of the disease, except in one case in which the treatment lasted forty minutes.

They conclude that this method is of great value in the treatment of extensive localized malignant growths in which surgical treatment alone is unlikely to be successful, owing to the extent and fixity of the growths, or to the proximity of important structures.

Isolated secondary growths may be treated in the same way, but there is no effect on the development and growth of metastatic deposits. In such cases, however, the eradication of the primary growth often leads to a considerable prolongation of life, with a much greater degree of comfort.

Diathermy is probably more effective than fulguration, but fulguration is less likely to damage large vessels or other important structures.

Considering the severity of the cases the dangers of the treatment are slight.

These methods of treatment are suitable for all accessible forms of malignant disease and to certain forms of tuberculous disease.

PYODERMIA OF PARASITIC ORIGIN.

SEMON and BARBER, in the *Journal of the Royal Army Medical Corps* for May, 1919, state it is beyond the scope of their paper to supplement by other suggestions the measures for the disinfection of blankets and clothing at present in use at all general hospital and military cleansing depots in France. They emphasize, however, the extreme importance of simultaneously

eradicating the reservoirs and breeding places on the human body itself (as is done in scabies), for which purpose baths, medicated or otherwise, are not sufficient. If these are overlooked, it is obvious that there is every likelihood of a rapid reinfection of the sterilized garments within a short time of their reissue. They have found the cropping of the pubic hair and the repeated application of paraffin, or 1/40 carbolic lotion, to the pubis, perineum, and axillæ quite effective—although there is no doubt that if it could be supplied, petrol (which is used for this purpose in the French army) would be the most powerful agent, as it not only kills the adult parasite instantly, but also penetrates the chitinous envelope of the ovum, and detaches it from the hair.

An improvement over petrol is the solution of naphthalene one per cent, and sulphur one per cent in benzol or petrol, recommended as of proved efficiency by Gunn, R. A., M. C., in the *British Medical Journal* of May 5, 1917.

This solution is not only prophylactic to garments, momentarily steeped in it, over several months, but is, as they are informed, and have themselves proved, instantaneously lethal to both parasites and their eggs.

The most important point to be observed in the treatment of pediculosis is the discovery and elimination of the parasite and its eggs.

It now remains to mention briefly their methods of treating the secondary lesions.

(1) Treatment of the primary pustule. If of small or moderate size, expression of the contained pus and painting the surrounding skin with iodine are almost always sufficient to insure resolution.

(2) When ulceration and crusting have occurred, there is nothing which in their hands has yielded better results than an ointment of the following composition:

Acid. salicyl.,
Sulph. precip., āā gr. x;
Ung. hydrarg. oxidi flav., q. s. ad ℥j.

This is kept applied day and night on linen or lint, and in from four days to a week the superficial ulcers will be found in the majority of cases to have healed completely. Deep ulcers of an ecthymatous type also do well under it, especially if the patient is kept in bed with his legs raised. It is only occasionally that we meet with the deeply eroded indolent variety. These have to be treated on general principles with the patient in bed, and will tax the therapeutic resources and skill of the physician to the utmost.

A STUDY OF VARIOUS PNEUMOCOCCIDAL SOLUTIONS FOR MOUTH-WASHES.

Cohen and Steinfield, in the *Journal of the American Pharmaceutical Association* for May, 1919, state:

1. A number of quinine solutions in different flavoring vehicles have been made up with the purpose of determining palatability and germicidal activity against pneumococci.

2. These solutions have all been found capable of destroying pneumococci of Types I and II *in vitro*. Those containing acacia have been less efficacious than others. Neither glycerin, syrup nor honey seems to interfere materially with the action of the germicide.

3. A solution containing quinine and urea hydrochloride and phenol, each in a dilution of 1:200, made up with 20 per cent of glycerin and flavored with oil of peppermint, is fairly palatable. This was tested against Type III pneumococci also and found effective. It exhibits, likewise, penetrative ability in sputum.

4. The solution mentioned in paragraph 3 may readily be associated with the compound guaiac gargle which has been found so effective against tonsillitis and other throat infections, and which of itself shows considerable germicidal activity against pneumococci. To do this one simply substitutes compound gargle of guaiac (N. F.) for the water of formula No. 10.

5. Infusion of cocoa may be substituted for water in all the formulas with advantage as to palatability, but owing to the tannin it contains it precipitates some of the quinine. This may, perhaps, lessen

slightly the germicidal activity, but it has been shown elsewhere that even insoluble quinine tannate in small proportions will inhibit the growth of pneumococci in test-tube cultures.

HEART MASSAGE FOR APPARENT DEATH.

As we have more than once discussed this subject in the editorial pages of the GAZETTE, particularly in the September issue, we think the following reports from the *Proceedings of the Royal Society of Medicine* for June will be of interest. DALY reports the case of a private, aged about twenty-five. He was in hospital at Étaples for some slight skin trouble, which was cured, and he was nearly due to return to his battalion when, during a night air-raid, he was struck in the abdomen and left thigh by portions of a bomb and sustained very severe injuries. At the end of the raid he was taken to the operating theater, where I saw him. He had then been given morphine ¼ grain and atropine 1/100 grain. His condition was extremely bad; he was cold and pale, the pulse was small and of low tension.

He had a penetrating wound of the abdomen and a compound fracture high up in the left femur with much comminution of bone and extensive laceration of the soft parts on the outer side of the thigh. It was not thought that he would stand an operation, so it was decided to wait for a time to see if his condition improved. No improvement took place, and after about three-quarters of an hour, as his thigh wound was bleeding somewhat freely, it was decided to operate. Daly chose as an anesthetic warm ether vapor with oxygen through Shipway's inhaler. Induction was quiet and uneventful.

Lieutenant-Colonel Seymour Barling opened the abdomen and another surgeon dealt with the thigh wound. While the abdomen was being explored the respiration and pulse became more and more feeble and soon both ceased; pallor became extreme, the eyelids separated, and Daly informed Colonel Barling that the patient was dead. He was about to close the abdomen, but at Daly's request he tried heart massage. This was performed through the diaphragm, and at first no contraction was felt; the heart was gently squeezed, and after about two minutes contraction was felt, slight at first but increasing in strength. Artificial respiration was at once started, oxygen being freely given. Automatic respiration soon started, and the operation was proceeded with. Four perforations of the intestine were sewn up, the thigh wound excised, the bleeding stopped, and a Thomas splint applied; during this time anesthesia was maintained by warm ether and oxygen.

Saline solution was given intravenously, and the patient returned to bed. The next morning his condition had improved slightly but he collapsed again later in the day and died in the evening, about twenty-two hours after the operation. At that time blood transfusion was not being used, and the only apparatus available for nitrous oxide and oxygen was Hewitt's, with double bag.

PARELL also reported a case as follows: During an exploratory laparotomy in a middle-aged man with very rigid abdominal muscles, ether failing to produce relaxation, C. E. mixture was pushed and cardiac failure ensued. Artificial respiration was carried on for two minutes, but it failed to resuscitate the patient owing to rigidity of the chest wall. The surgeon therefore enlarged the abdominal incision, and passing his hand up under the diaphragm, massaged the heart, which was completely flaccid. It recommenced to beat immediately.

SHIPWAY stated that he had a case of sudden collapse during laparotomy under ether. The patient was a man aged sixty, of poor physique, thin and feeble. His condition was entirely satisfactory during and up to the opening of the peritoneum, but when the stomach was pulled out of the wound he collapsed, respiration quickly failing and the pulse at the face going. Lowering the head, squeezing the chest, and artificial respiration were tried, but the

pupil continued to dilate; the heart-beat could not be felt. Massage of the heart through the diaphragm was quickly successful.

INJECTIONS OF TYPHOID VACCINE IN VARIOUS DISEASES.

CADBURY, in the *China Medical Journal* for May, 1919, reports many cases treated in this manner and reaches these conclusions:

1. Commercial typhoid vaccine, or typhoid paratyphoid vaccine, prepared for prophylactic inoculations, has unique and very marked therapeutic properties if injected intravenously.

2. This vaccine appears to lose none of its therapeutic efficacy if diluted with saline solution, or if given as much as six months after the date of expiration marked on the container.

3. In acute arthritis, associated with little or no fever, injections of vaccine will generally complete a cure which has been only partially accomplished by salicylates, aspirin, etc.

4. In rheumatic fever temporary amelioration of symptoms, at the least, may be expected by the use of vaccine treatment.

5. In chronic arthritis, whether it be rheumatoid arthritis, or chronic monarticular affections, the pain is always temporarily and usually permanently relieved, and swelling and crepitus in joints may be greatly decreased. In these chronic conditions the vaccine alone is not sufficient to complete a cure, but it is a most valuable adjunct to other well-known measures of treatment such as the use of salicylates, hot-air treatment, electricity, massage, etc.

6. In gonorrheal arthritis typhoid vaccine appears to be as effective as gonorrheal vaccine, and in conjunction with other measures is a valuable addition to our therapeutic armamentarium.

7. In syphilitic affections typhoid vaccine is effective in relieving pain, though it is not in any sense equal to the recognized antisyphilitic remedies.

8. In various forms of neuralgic pain, which can otherwise only be relieved by morphine, typhoid vaccine is most effectual, *e.g.*, the pains of carcinoma or or sarcoma, and the pains following gunshot wounds with injury of nerves. Not only is the pain temporarily relieved, but it may be permanently checked after two or more injections. In tic-douloureaux typhoid vaccine may act far more effectively than morphine.

9. Psoriasis can be temporarily cured by vaccine.

10. Lichen planus can be temporarily cured by vaccine.

11. The itching of eczema may be greatly relieved temporarily by vaccine.

12. Erythema induratum may be cured by the vaccine.

[Phylacogens in our experience give equally good results given hypodermically in arthritis.—ED.]

THE TREATMENT OF VINCENT'S ANGINA.

In the *Albany Medical Annals* for July, 1919, THEISEN remarks that it is of course well known that arsenic in some form has almost a specific action in some cases. Salvarsan locally and intravenously, in bad cases, is of great service, and potassium iodide internally is a good adjunct to the local treatment.

Halsted has had good results with the use of enesol, an arsenate of mercury used hypodermically. Local applications too numerous to mention have been recommended by different authors.

The writer has found that a strong solution of potassium chlorate, powdered alum, carbolic acid, glycerin and water is almost a specific in some cases, and clears up the throat lesions quicker than anything else. It is used as a gargle, for adults and children old enough to use gargles.

In very young children it is used as a spray, the strength of the solution varying with the age of the patient.

After an attack the mouth should be carefully examined, and all bad teeth and diseased tonsils removed.

Proper care of the mouth and throat is of the greatest importance. A twenty-per-cent alcoholic Seiler's or Dobell's solution, if used several times daily, will not only prevent attacks of Vincent's angina, provided of course that the usual predisposing causes have been removed, but will go far in producing immunity from most all anginas and other infectious throat conditions.

The strong carbonized astringent solution above mentioned will, in the writer's opinion, if used early, clear up the throats in cases of Vincent's more quickly than any other method of treatment. It should be used very frequently, every half-hour in the severe cases, and every hour or two in the milder cases. After a few days, if the throat lesions show a tendency to clear up, it is used less frequently.

Vincent's angina is really a very common condition, and if we are on the lookout for it, will be found much more frequently than we think.

SCOPOLAMINE-MORPHINE ANESTHESIA.

In the *Journal of the Michigan State Medical Society* for July, 1919, VAN HOOSAN states that in the majority of scopolamine-morphine anesthesias it will be necessary to administer ether or chloroform during the operation, in order to obtain relaxation or to secure quiet while incising the skin or peritoneum. But so small amount of ether or chloroform is necessary to produce the desired result that nothing is ever given until the operator is ready with the knife in hand and can test the patient's reflexes by beginning to incise the skin. If the patient moves the ether or chloroform administration is begun, but never continued to the point of complete abolishment of reflexes. An open mask without any surrounding reënforcements of gauze or towel is preferable, and the ether or chloroform is frequently stopped for a longer or shorter period, according to the sensitiveness of the area in which the operator is working. Pfifer, special anesthetist to the Wheatland Wyoming Sanitarium, uses chloroform until the patient is quiet, then continues with ether, drop method, on the same mask, but if the patient becomes restive the chloroform is resorted to until she is quiet, when the ether is again resumed.

Gas in the hands of the experienced gives most happy results when used as an adjuvant to scopolamine-morphine anesthesia.

For obstetric anesthesia one must bear in mind that parturition is a reflex action entirely, and therefore a minimum dose of morphine should be given on account of its dulling effect on the reflexes. The scopolamine having an opposite effect can be used in full doses frequently repeated.

The initial dose of the obstetric anesthetic is scopolamine 1/100 gr. with morphine ⅛ gr., and may be given as soon as labor commences or at any time during the labor. This is the only dose of morphine that is given, but the scopolamine 1/100 gr. is repeated every half-hour for two succeeding doses. These three doses—*i.e.*, the initial dose and the two doses following at half-hour intervals—will be effective in producing anesthesia in all obstetric patients. The problem now is to keep the patient in this state of anesthesia, and it is accomplished by repeating the scopolamine 1/100 gr. every two hours until the patient is delivered, no matter how protracted the labor may be. If delivery is likely to take place at the time the last dose of scopolamine is due, this last dose is advanced one-half hour to insure perfect anesthesia when the head passes the perineum.

For work about the mouth or inside the throat, it is of prime importance that the reflexes are as active as is compatible with complete analgesia. Bearing this in mind, we produce dental anesthesia by giving the patient scopolamine 1/100 gr. with morphine ⅛ gr., and repeat this dose in one-half hour. In exactly one-half hour after the second dose the extraction should be made. This anesthesia is so light, it would more properly be called an analgesia. Patients sleep soundly for one or two hours, and on waking do not seem to know that

the extraction has been done even though at the time of the extraction they opened the mouth widely and repeatedly at the suggestion of the operator and voluntarily expectorated.

The anesthesia is administered and the extraction is done with the patient in her bed. No mouth-gag is necessary; very little soreness is felt after the extraction and no pain during extraction. If the extraction is delayed beyond the half-hour after the second dose we may lose the coöperation of the patient and not be able to do the extraction until another day.

Surgical analgesia is often desirable for painful dressings, minor or emergency operations, and cystoscopic examination, and may be effected in one-half hour by the administration of a single dose of scopolamine 1/50 gr. with morphine ¼ gr. A postoperative analgesia may be maintained for twenty-four or forty-eight hours by the hypodermic administration of scopolamine 1/200 or 1/400 gr., with morphine 1/32 or 1/54 gr., every four hours beginning two to four hours after the operation is completed.

THE INTRAVENOUS USE OF IRON AND ARSENIC.

Stern in the *Medical Record* of July 5, 1919, tells us he has used sodium iodide and salicylate, hexamethylenamine, and other remedies by this method. His interest has been centered, however, upon the use of iron and arsenic intravenously. For years he was in the habit of using various combinations of iron and arsenic intramuscularly, but since using these remedies intravenously he has been able to make a new estimate as to their value. The solution employed contains 64 milligrams (1 grain) of iron cacodylate. Injections are given at intervals of from four to five days.

In every single case anemia was promptly corrected. Two cases of incipient tuberculosis responded well and the progress of the infection was absolutely arrested. A number of neurasthenic cases, in one of which there was a decided psychosis, reacted wonderfully.

In three cases of women with hysterical thyroid disturbance there was a prompt response with diminished symptoms after each injection. Six injections were given in all.

Another case was that of a man who had returned from the tropics with chronic diarrhea and severe anemia. Bowel movements were corrected and the general improvement was remarkable after four injections.

In four cases of chlorosis with extremely low hemoglobin index, the index was brought to 90 within forty days by the use of eight injections in each case.

The results obtained in postoperative anemia, and in the anemia following pneumonia and other acute infections, indicate that it is an ideal method of hastening convalescence.

In a theatrical man, with failing voice and severe neurasthenia, a remarkable recovery was obtained, which could not be attributed to local treatment.

The writer wishes to emphasize that the general practitioner possesses ample skill required to introduce the hypodermic needle into the vein and hold it there for a minute or more, while making the injection.

Intravenous therapy can be carried out as an office routine. He has never had an injection followed by what could be called an alarming reaction. There are, of course, "needle-shy" patients who perspire and rarely feel faint, or actually do faint. This is purely psychic. In rare instances a little nausea is complained of after the first injection of iron and arsenic. He has never encountered any evidence of reaction in the form of chills, depression, or shock.

When it is borne in mind how many times digestive disturbances and other shortcomings of the oral method occur, and how frequently abscesses occur, and hyperemia and pain follow the intramuscular method, there is no question that the intravenous method is more scientific, more direct, safer, and more efficient. With proper technique there is no leakage or in-

filtration. The patient feels no pain, except the prick of the needle as it goes through the skin.

APOTHESINE IN TONSILLECTOMY.

In the *Medical Record* of July 5, 1919, COLEMAN tells us that at a recent meeting of the Medical Society of the County of New York, Wiener, in his report of 250 major operations under local anesthesia, told of one case where his supply of apothesine had run down and the best he could make up was a solution of one-third of one per cent. His patient had absolute anesthesia throughout the operation, which was a laparotomy. The anesthetic solution as well as the syringe and needle should be boiled to insure sterility. The needle Coleman uses is three inches long and slightly curved at the point. The point of the needle is inserted at the upper end of the anterior pillar of the fauces and should just penetrate the mucous membrane and not go deep into the pillar. The needle, although beneath the mucous membrane, should be so superficial as to be visible to the operator. Injection of about five minims is made at this point. The effect of the injection is to raise a circular blanched bleb radiating from the point of emergence of the solution from the needle. The needle is withdrawn and inserted into the lower portion of this bleb and another injection is made. This will make a second bleb, encroaching on the first but extending further down on the pillar. This procedure is continued until the entire anterior pillar is covered by contiguous blebs.

Great care must be taken to thoroughly infiltrate the junction of the anterior pillar with the base of the tongue, because this is a sensitive region. The injections are now made into the posterior pillar in the same way. The tonsil should not be injected as it is entirely removed from its peritonsillar relations. Both tonsillar regions should be anesthetized before either tonsil is removed. Even with extreme deliberation both sides can be anesthetized in less than five minutes, while the time allowed for the administration of a general anesthetic is at least ten minutes. This is to forestall the plea of some surgeons that they do not have time to do this operation under local anesthesia. The junction of the anterior pillar and the tonsil is now incised. The tonsil is grasped by the forceps and held under tension while a curved dissector separates it from all its attachments until it hangs only by a pedicle at its base. Snare wires are now placed in position and the excision is completed. This method for obvious reasons is not applicable to children.

Since his last report Coleman has performed thirty tonsillectomies on adults, using apothesine and adrenalin anesthesia. Some of these were done in his office and others in the Nose and Throat Clinic of the University and Bellevue Hospital Medical College. Anesthesia was always perfect and invariably lasted more than two hours. This anesthetic does not interfere with primary healing of wounds. In this series of thirty cases and in his original ten cases there was a consistent absence of sloughing. Hemorrhage in these patients was negligible. For the most part it consisted only of slight oozing, but the field of operation was never obscured. This of course was due to the vasoconstrictor action of adrenalin.

THE TREATMENT OF BRACHIAL NEURITIS.

WILLIAMSON in the *British Medical Journal* of June 7, 1919, states that a point of first importance is to relieve, by the position of the arm, pressure on the nerve trunks of the brachial plexus in the posterior triangle of the neck. The weight of the arm should not drag on the nerve trunks, and the posterior surface of the clavicle should not press upon them at the lower part of the posterior triangle, nor should any strap or brace press on the posterior triangle. For many years he has treated cases of brachial neuritis by placing the affected arm in a sling. The sling should pass over the shoulder of the normal arm, and it should be so arranged that it passes under the

elbow of the affected arm and slightly raises it. The shoulder and the clavicle are thus slightly raised, and pressure on the nerve roots at the lower part of the posterior triangle of the neck (near the first rib) is prevented; also the weight of the arm is supported and dragging on these nerve trunks prevented. These he regards as points of much importance in the treatment of many cases. Very often the sling is of great service; in other cases it fails; but it is always worth trying, especially if there be a history of local pressure causes. The sling also keeps the arm at rest. All tight braces or shoulder straps should be removed at once, and a waist belt used in place of braces. If the patient is on military service all tight shoulder straps should be slackened or discontinued altogether when possible.

The arm should not be allowed to hang by the side. If the arm cannot well be kept all day in a sling, the hand should be placed in the pocket when the sling is not used, or the arm may be crossed over the front of the chest, the elbow being bent at a right angle, and the hand pushed under the edge of the coat just above one of the buttons. When the pain is very severe and the patient confined to bed, the sling should still be used. The arm may be also supported by pillows placed under the elbow, so arranged as to support the weight of the arm, or to raise the shoulder slightly; and the forearm should be crossed over the chest. In this way pressure by the clavicle on the nerve roots in the posterior triangle of the neck is avoided or diminished. When the neuritis is due to exposure of the neck and shoulders to cold and draught or damp, or when due to diabetes or toxic conditions, the sling may not be of much service, but in some of these cases also it is helpful.

The drugs which Williamson usually gives, and which may be of service, are pyramidon, antipyrin, aspirin. General and dietetic treatment for diabetes or gout will be desirable when the patient suffers also from these diseases. It is always well to cut off alcohol.

Locally, liniment of belladonna, the fluid prepared by rubbing together equal parts of chloral and camphor in a mortar, or cocaine ointment, may be of some service. In very severe cases, opium, morphine, or codeia internally may be required, and, in exceptional cases, hypodermic injections of morphine. This was necessary in only one of his cases. Galvanism and many other methods of treatment have been employed.

Most of Williamson's cases, but not all, recovered promptly or improved markedly by the use of a sling, with pyramidon or antipyrin given internally.

THE USE OF CORPUS LUTEUM IN PREGNANCY.

Writing in the *Journal of the Michigan State Medical Society* for July, 1919, WELZ tells us he has used the extract in thirty-eight women who have suffered more or less from toxemia of early pregnancy.

The material used is a solution equivalent to 2 grains of desiccated corpora lutea in 1 Cc. of physiologic salt solution saturated with chloretone for its local anesthetic effect. This comes prepared in ampoules in sterile solution ready for use. The product is taken from sows, 90 per cent of which are said to be pregnant at the time of slaughter. The extract from sheep and cows is equally efficacious, but that of the pig is nearer to the human extract in richness of lutein cells. The dried extract in tablet or powder form is not to be used, because of the digestive action on it in the alimentary canal before absorption. Results are not obtained from the administration of the extract in this form, and some women seem to be more nauseated after its use by mouth.

A small glass Luer syringe is used for injection. The glass and needle are boiled for five minutes and then allowed to cool before drawing the solution into the syringe. The site of injection is prepared by cleansing with chloroform. The preferred area is the gluteal region, though the deltoid is usually satisfactory. The needle is driven sharply into the muscle and the contents slowly injected. Subcutaneous injections are not satisfactory because of the pain

induced and the possibility of local anaphylactic action.

The number and frequency of injections necessary to produce results vary greatly. Mild cases suffering only from morning sickness may require three or four injections given every other day. Some respond to one injection, but it is advisable to give several more as the effect is usually transitory when only one is given. In severe cases it is necessary to give injections daily or twice daily. Each injection consists of 1 Cc. of the solution.

Each case was examined for possible source of reflex vomiting. Physical examination was made to discover and alleviate pelvic displacements and abnormalities. Elimination, especially through skin and bowels, was provided for. The routine directions as to diet and hygiene were followed. Milder cases were cared for at office or clinic, more severe ones at home. A special effort was made not to permit suggestion to play any part in the treatment. In clinic cases injections were given without a word as to their purpose. As other routine measures such as drawing blood for Wassermann test are followed, the patient took injections as a part of the routine without knowing or suspecting what they were for.

The result has been gratifying in all cases except one suffering from Graves's disease. There was a slight recurrence after a period following the injections in sixteen cases. These responded quite readily after renewed administration of from one to three injections. In mild cases there was usually an improvement after the first or second injection, and almost complete alleviation of nausea after the third or fourth injection. Several experienced repeated periods of nausea, but these were improved after further use of the extract.

There were three marked toxic cases which responded well after a course of injections given twice daily. All of these were confined to bed, unable to retain food, had low blood and pulse pressure, and were losing weight. Each was relieved of nausea and vomiting, and after sufficient nourishment was retained, each improved greatly in general health.

Welz reaches these conclusions:

1. During early pregnancy there is a great increase in corpus luteum and also in the internal secretion from it.

2. A deficiency in the normal increased secretion from the corpus luteum of pregnancy results in a toxemia of early pregnancy.

3. The principal symptoms of this toxemia are nausea and vomiting. Others less common are dizziness, headache, vertigo, neurasthenia, insomnia, mental depression. Later the symptoms of undernutrition and emaciation follow.

4. The administration of the extract from corpus luteum corrects these symptoms by supplying the deficient secretion of corpus luteum in the individual suffering from this toxic state.

5. The regular exhibition of this extract may control cases of habitual abortion due to deficient corpus luteum development in early pregnancy.

6. Diagnosis of early pregnancy may occasionally be sided by the specific effect of corpus luteum extract in stopping hyperemesis.

CALOMEL IN HEMORRHOIDS AND PRURITUS ANI.

Many years ago MOLLER found in "Excerpta Medica" an account, abstracted from a German medical journal, of the striking effect of calomel applied in powder form to hemorrhoids. They and the adjacent skin are carefully cleaned and dried, and the calomel is then thickly dusted on them. The pain of hemorrhoids quickly ceases, and after the application has been repeated several times the hemorrhoids dwindle and are converted into pale, indolent flaps of skin.

These claims on behalf of calomel were amply verified by the writer during the following years, but he thought the matter too trivial, or the remedy too generally known, to rush into print. But when it cropped up in the correspondence columns of *Ugeskrift* he added his own to the testimony of many

other correspondents. One of these, Ove Hamburger, has found the action of calomel powder on pruritus ani to be so striking as to deserve the rare praise of a specific remedy. Dusted on the anus and its neighborhood after defecation, it forms a white lacquer, traces of which are still visible twenty-four hours later. It is not therefore necessary, as one writer suggests, for the calomel to be incorporated in an ointment in order to make it adhere to the skin. Indeed, calomel ointment appears, according to another writer, to be comparatively inert and to be much less effective than calomel powder.

One correspondent reports the case of a colleague whose pruritus ani had persisted for years, in spite of varied treatment, including the *x*-rays. Calomel in ointment form also proved inert, but when dusted on as a powder the disease vanished. Another correspondent gives a facetious account of two patients, one poor, the other rich. The poor man obtained instant relief by consulting the local practitioner, who had been following the correspondence in *Ugeskrift* about calomel in pruritus ani. The rich man hied him to a German watering-place, only to return with his pruritus as troublesome as ever.—*Indian Medical Gazette*, June, 1919.

URETERAL CATARRH.

In the *Journal of the Missouri State Medical Association* for August, 1919, BURFORD points out that ureteral stones may be successfully treated by at least three methods, but before taking up these methods it might not be amiss to say something about dissolving these stones.

If the question of dissolving stones were asked only by the patient it would scarcely be worth while to mention it in such a paper as this, but not infrequently do we find some enthusiastic therapist who believes or succeeds in making his patients believe that he has dissolved their stones, and has in reality disillusioned their ideas of the necessity for further investigation or operation until their kidneys are beyond repair. As a matter of practical demonstration the writer has taken a ureter stone a little larger than a garden pea and immersed it for twenty-four hours in pure sulphuric acid to find that the acid acted only on the surface, liberating a jelly-like mass of mucine, which is one of the important substances cementing most stones together, and this film of mucine had protected the remainder of the stone from the action of the acid.

There is absolutely no question but that the greatest of all solvents, water, if taken in sufficient quantities, keeps substances in solution in the urine that would be thrown down in crystalline form in concentrated secretion, but we have not the slightest evidence that urinary stones once formed even in the smallest masses are ever caused to go into solution again while in the living body.

The first method of treatment and the one that is used too frequently in the treatment of ureteral stones is the expectant plan, or treatment of the principal symptom of pain by the use of opium and its derivatives. Roundtree and Geraghty have proven by animal experimentation that the use of morphine increases the number and strength of the peristaltic contractions of the ureter, hence the very large doses of morphine required to relieve the pain of ureter colic. The opinion is held that this method should be recommended only when the stone is known to be very small and reasonably smooth and has been in the ureter only for a short time, and when the other two methods are for any reason impossible. It is true that a large per cent of these stones will eventually find their way to the bladder, but irreparable damage to the kidney will be found in most of these cases.

If in addition to partial or complete blocking of the ureter by the stone there is an infection in the kidney pelvis, this infection will be driven into the lymphatics between the collecting tubules and into the cortex of the kidney while under pressure and result in multiple abscess formation, as demonstrated by Stoerck, necessitating the immediate removal of the kidney. No case of

ureter stone complicated by infection should be treated by the expectant plan.

The second method is by intraureteral manipulations and injections and is indicated in by far the largest per cent of cases, and should be tried in all cases except those of very large or irregular stones.

By the injection of local anesthetics and paralyzing agents into the ureter and up against and below the stone we have almost an ideal remedy which instantly relieves the pain and by paralyzing the circular fibers of the ureter below the stone increases its caliber and favors the rapid discharge of the stone. To Roundtree and Geraghty is due the credit for experimenting with, and putting in the hands of the profession in convenient form for use, papaverine in sterile ampoules for intraureteral injections. Within five minutes after its injection through a ureteral catheter the vesical ostium of the ureter is seen to stand open in more of a round shape than as a slit and apparently losing all its valve effect. Within a few hours after its use the ureter stone is frequently found in the bladder. The writer and his associate, Dr. Kramolowsky, have had a very successful experience with the use of this drug locally in several cases, with apparent failure in some others.

No untoward effect either locally or systemically has been noted in the use of papaverine.

Stones within or very near the vesical ostium of the ureter may be grasped and removed by ureteral forceps through the cystoscope, but these forceps have not proven of value for stones at any distance from the bladder.

On two patients, one male and one female, I have been able by bimanual manipulation to bring down stones within the last 2 inches of the ureter.

Now and then a stone may be delivered into the bladder by slitting the vesical orifice of the ureter, care being taken not to penetrate the entire bladder wall.

The third method is that of open operation, exposing the ureter extraperitoneally through the prolongation of the usual kidney incision posteriorly so that the kidney can be palpated or inspected and the ureter more easily found and traced. This incision may be extended forward 1 inch in front of the anterior superior spine of the ilium and as low as necessary for proper exposure of any portion of the ureter.

The ureter usually adheres to the peritoneum and should be stripped off with care. When the stone is located it is usually best to slit the ureter some distance above the stone, and by the use of forceps grasp the stone and pull it up to the opening, because there is apt to be a sacculation formed at the side of the stone and a tendency for the urine to leak at that point, especially if there is a stricture below it.

After the stone is removed it is well to dilate any constriction below the former site of the stone. The incision in the ureter, which is always longitudinal, should be closed with a few interrupted fine catgut sutures. A small drain may be left in the neighborhood of the uteric wound for twenty-four hours, but should not touch it.

The percentage of return of kidney stones which may later become ureteral stones in Cabot's series was fifteen.

No doubt much can be done in a hygienic way to teach these patients how to live and above all how to drink water. It is conceded by practically all authorities that proper exercise is most essential as a prophylactic.

The avoidance of stimulants and irritants is no doubt important, and the proper reaction of the urine to prevent precipitation of the special crystals which tend to form in the individual case should be given close attention; but more important than all these measures is to render the kidney pelvis free from infection, which is possible in a large number of cases.

Most authorities concede that infection plays a most important rôle in the formation of urinary stones, and if this is true no physician should allow his patient to go with a pyuria or bacteriuria who has once had ureteral stones, without proper cystoscopic examination and lavage of the infected kidney pelvis until it is free from infection or has been proven impossible to sterilize.

DIAGNOSIS AND TREATMENT OF MENINGITIS.

STONE, in the *Ohio State Journal of Medicine* for August, 1919, reaches these conclusions based on 259 cases:

1. The early diagnosis of abortive types of meningitis, especially during an epidemic, is important.

2. Although recognizing the importance of carriers and their relationship to instances of the acute disease, it is doubtful if carriers can be detected early enough during the course of an epidemic to limit its spread.

3. Intimate contacts should be cultured upon the development of a case of the disease. In the presence of an epidemic in a military organization the company in which a case of the disease originates should be cultured. If a carrier is found he should be isolated, receive simple treatment, and be kept in isolation until four or five negative nasopharyngeal cultures have been returned. These may be taken at two-day intervals.

4. Early energetic treatment is of greatest importance. This embodies, especially in those manifesting petechiæ, intravenous and intraspinal therapy. The following plan is recommended: First day, one intravenous injection of from 60 to 80 Cc. serum and two intraspinal injections of from 30 to 40 Cc. each after spinal drainage of from 45 to 55 Cc. of fluid, depending on its pressure; second day, same except that from 80 to 100 Cc. of serum should be given intravenously, and two spinal injections; third and fourth days, if necessary repeat; fifth to eighth day, one spinal injection; ninth and tenth days, one spinal drainage daily.

5. It has always been proved wise to desensitize, before giving the first intravenous injection, by subcutaneous injections of 0.5 Cc. and 1 Cc. of serum. The intravenous injections should be given slowly at the rate of 1 Cc. of warmed serum per minute for the first 10 or 15 Cc. If anaphylactic symptoms occur, the injection should be stopped and the attempt repeated later. Adrenalin chloride, 1 Cc. of the 1-to-1000 solution, by hypodermic injection relieves the symptoms of anaphylaxis. Atropine, grain 1/100 by hypodermic injection, is also useful. The serum, if mixed, not shaken, with an equal volume of salt solution, is less apt to clog the needle.

6. If patients have been given a number of intraspinal treatments and subsequently an intravenous injection is contemplated, extreme care in its administration is necessary to avoid serious symptoms of anaphylaxis.

7. Overtreatment after the first ten or fourteen days may do positive harm.

8. The actual and differential polymorphonuclear leucocyte count is of value in prognosis.

THE CONSTIPATING EFFECT OF ORANGE JUICE.

In the *American Journal of Diseases of Children* for August, 1919, GERSTENBERGER and CHAMPION tell us that observations made on a normal infant ten months of age to ascertain the relative position as a cathartic or laxative of orange juice to an equal amount of a 10-per-cent sugar solution composed of 6.5 per cent glucose and 3.5 per cent sucrose show in one period no difference between the two solutions, and in the other period a relative laxative advantage of the sugar solution over the orange juice, or better, a relative constipating ability of orange juice as compared with the effect obtained with the 10-per-cent sugar solution. During the sugar-solution period anywhere from 95.71 to 96.53 per cent of the water output went by way of the kidneys, and from 4.29 to 3.47 per cent went through the intestines, while in the case of the orange juice from 97.15 to 97.25 per cent of the fluid output went by way of the kidneys, and from 2.85 to 2.74 per cent by way of the intestines. In other words, orange juice, relatively speaking, has been less laxative than a 10-per-cent sugar solution when given in doses of 15 Cc., six times in twenty-four hours.

This observation confirms practical experience that orange juice in the maximum amounts ordinarily used has more of a con-

stipating than a laxative effect, and therefore should only be used as an antiscorbutic or as a diuretic, but not as a laxative, and especially not for children who are already constipated.

These observations also point to the important rôle that diuresis may play in the production of constipation, and it may be possible that some of the cases of constipation in infants supposed to be due to an abnormally long retention of the feces in the gut and a consequent too complete absorption of water in the large intestine are primarily due to the presence of a factor that causes an abnormal increase in the excretion of water through the kidneys.

THE USE OF VACCINE IN PERTUSSIS.

REYNOLDS in the *Archives of Pediatrics* for May, 1919, reports 51 cases of pertussis treated by vaccine and says that the impression derived from this very small number of cases is that, provided we have a sufficiently early diagnosis, and treatment is started early enough, there is some virtue to be derived from the unmixed Bordet-Gengou vaccine, and more virtue to be derived from the mixed vaccines administered therapeutically in pertussis.

TREATMENT OF HYPERTENSION IN WOMEN.

RIESMAN, in the *Journal of the American Medical Association* of August 2, 1919, points out that in this, as in all chronic diseases not definitely infectious in character, our powers of cure are very limited. That being so, the great desideratum is to find means of prevention. To this end we must learn to recognize hypertension in the making and then to remove such removable factors as are concerned in its production. As there may be nothing in the symptomatology in the early stages to attract attention to the circulatory system, there is but one way to discover incipient stages—by routine blood-pressure examination and careful determination of the size of the heart. A comparison of records made at intervals would then show us in which patients the pressure was on the up grade.

In the treatment of the established condition, harm may readily be done by too much interference. Just as we have gotten away from using digitalis on the mere discovery of a murmur when the valvular defect is compensated, so we should not try to lower the blood-pressure to any great degree in patients in whom the hypertension is well borne—in whom it is adequately compensated. If the patients know that they have high blood-pressure, one may honestly assure them that the dangers of this symptom have been overemphasized.

Regulation of the diet is necessary, more often in the direction of quantity than of quality. I have found this class of patients as a rule to be heavy eaters, and have come to feel that they do better on a restricted diet, especially on one that is largely lacto-vegetarian. A lamb chop, a little chicken, and fresh fish are permissible. Rest, at times a semirest-cure, is desirable in many instances. In some persons, however, graduated exercise, walking and moderate golf playing may safely be advised.

With regard to drugs, I am not in the habit of using them as a matter of routine. The nitrites are not indicated in patients who do not suffer from their hypertension. Though high-geared, the circulation may be well maintained and vasodilators only serve to upset the equilibrium. The iodides may be used in the essential type of hypertension in small doses over a long period. Lately I have secured apparently striking results from the use of corpus luteum extract. The pressures were lowered without any untoward effects, and the subjective symptoms were markedly improved.

Baths and electricity may at times be employed with benefit. When the cases approach the danger line, nothing is so valuable as venesection; when this cannot be done, then leeching from the mastoid process is a very good substitute.

In the thyrotoxic cases, rest is of the greatest importance. Patients of this type should take their breakfast in bed and lie down for an hour or an hour and a half

after the noon meal. Tea and coffee should be forbidden. Medicinally, the bromides, at times, with small doses of tincture of veratrum, seem to do good. I may add that in the dizziness of hypertension, tincture of veratrum has often given me very satisfactory results.

The patients of all types of hypertension should be urged not to worry, but the mere injunction "not to worry" carries small weight. It is necessary for the physician to analyyze with judgment and with great patience the worry-breeding conditions of the person's life and to convert his patient, if possible, to a more philosophic attitude. By considering all the details of the patient's daily life, one may often point out definite ways of easing the strain.

PITUITARY FOR DIABETES MELLITUS.

KENNAWAY and MOTTRAN, in the *Quarterly Journal of Medicine* for April, 1919, which has just appeared, reach these conclusions from clinical experience:

1. Data are given as to the composition of the urine, and its molecular concentration in comparison with that of the serum, in two cases of diabetes insipidus. When large amounts of sodium chloride are given, the diuresis is so adjusted that the percentage of nitrogen plus chlorine in the urine remains unaltered; the kidney, therefore, lacks the power of concentration which is exhibited normally after ingestion of salt.

2. The antidiuretic effect of pituitary extract given by subcutaneous injection was demonstrated both in a normal subject and in a case of diabetes insipidus; administration of such preparations by the mouth is ineffectual.

3. No record has been found in the literature of any case of diabetes insipidus in which abnormality of the pituitary was excluded with certainty by post-mortem examination, whereas in a considerable number of cases the disease has been associated with a lesion of the posterior lobe of the gland. However, such lesions are not invariably accompanied by diabetes insipidus. The evidence of morbid anatomy as to a connection between the pituitary gland and diabetes insipidus is therefore inconclusive.

4. The experiments of Cushing have shown that polyuria can be produced experimentally by lesions of the posterior lobe of the pituitary, but the great variations in the duration (two days to six months) of these polyurias show that there is some very important factor which has not yet been determined. The polyuria produced by lesions of the brain adjacent to the pituitary (Camus and Roussy) may perhaps be accounted for by the diffusion of pituitary secretion in the brain substance. There is also some evidence that the polyuria following stimulation of other parts of the nervous system (medulla, superior cervical ganglion) is due to activity of the pituitary.

5. The antidiuretic effect of pituitary extract appears to be due to direct action upon the kidney (Konschegg and Schuster); the experiments of Rees do not demonstrate that it is the result of diminished absorption from the intestine.

6. The immediate restoration of a normal state of the urine when pituitary extract is given in diabetes insipidus provides the strongest evidence for the normal activity of the gland in regulating the secretion of urine.

CHLORETONE AND ETHER HYPNOTICS.

GANGULI, writing in the *Calcutta Medical Journal* for May, 1919, writes of chloretone as follows:

It is more powerful than chloralamide. It resembles chloral hydras in most respects, but differs from it in two ways—smaller doses exert greater hypnotic effects, and secondly, larger doses are not depressant. It is useful in the treatment of tetanus. It is especially valuable as a hypnotic in insomnia associated with disorders of the gastrointestinal tract, where a sedative effect on the alimentary mucous membrane is also required.

In some cases tolerance to the drug may

be acquired. Chloretone undoubtedly has a cumulative action, hence when given for some days in repeated doses its action requires careful and constant supervision. A combination of chloretone and chloralamide acts better than either of the two. Used in this way it acts as a very potent hypnotic, especially in acute specific fevers.

In cases of insomnia associated with pain, he tried the following drugs: chloral hydrate, chloretone, chloralamide, and urethane, arranged in order of their potency, the first named drug being the most powerful and the last one the least. When the pain is a constant one and of a dull, aching character, especially if in children, urethane is the drug which can be used safely in fairly big doses and over a long period. When the pain is of a vague, indefinite character, not associated with any serious organic lesion, veronal is an ideal drug. When pain arises from lesions of upper part of the alimentary tract, chloretone acts both as a sedative and hypnotic. In painful diseases like tetanus the value of chloretone is inestimable. When pain is angina-like, chloral hydras is indicated.

THE PHYSIOLOGICAL ACTION OF ADRENALIN.

ERLANGER and GASSER, in the *American Journal of Physiology* of August 1, 1919, reach these conclusions from their experiments upon shock:

1. The injection of adrenalin for a period of twenty to thirty minutes at such a rate as to maintain a high arterial pressure invariably constricts the arteries of both the somatic and the splanchnic areas. With large doses this constriction may be maximal and outlasts the injection period, it may be, for as long as two hours. This continued constriction is partly due to central action.

2. After sufficiently large doses, the arterial pressure, barring occasional intercurrent phenomena, falls steadily and slowly until the animal dies.

3. The jugular pressure, during or after large injections, shows no constant alteration, at least not of a kind that indicates inefficiency of the heart.

4. The heart may become irregular for a while and occasionally stops suddenly while the arterial pressure still is high.

5. The respiration after large doses often is slowed and may suddenly or gradually fail.

6. The portal pressure is increased, often markedly, during the injection, and may remain high subsequently; but not uncommonly it soon returns to the normal level.

7. The rise in portal pressure undoubtedly is caused by an obstruction in the liver which is so marked as to back up even the small amount of blood that is entering the portal system through the strongly constricted splanchnic arterioles.

8. The circulation may fail suddenly through stoppage of the heart due to direct action of the adrenalin, or to the indirect action of respiratory failure. But more often the failure of the circulation is gradual, the pressure steadily falling until the animal dies. The arterial constriction induced by the adrenalin then lasts until the end. In such instances a reduced blood volume, either real or effective, seems to be the main factor at fault. Apathy, as well as the other signs of shock, are present.

9. Evidence is presented indicating that accumulation of blood in the portal area as a result of the increased portal-hepatic resistance is not in itself the cause of the failure of the circulation. For marked obstruction of the hepatic radicles in the liver by the injection of a suspension of lycopodium spores may not lead to the shock-like failure of the circulation that is seen after adrenalin.

10. The failure of the circulation is rather to be attributed to the extreme slowing of the blood flow throughout the body caused by the constricting action of the adrenalin on the arteries. It is concluded that the cause of the failure is the same as is operative after temporary partial obstruction of the vena cava or of the aorta. This conclusion is justified by the fact that the most striking lesion found in animals dying as a result of any of these three procedures

is alike, and consists of tremendous engorgement of the capillaries and venules of the villi of the intestines.

SERUM THERAPY IN PNEUMONIA.

In the *Journal of the American Medical Association* of August 16, 1919, STOLL reaches these conclusions:

1. The transfusion of "normal" blood or serum is only exceptionally of value in influenzal pneumonia.

2. The blood or serum from individuals vaccinated against pneumococcus Types I, II and III possesses no advantages over "normal" blood in this type of pneumonia.

3. Too few patients were treated with convalescent influenza serum to warrant definite conclusions. The impression received was that it was less potent than convalescent pneumonia serum, but of more value than "normal" serum.

4. The transfusion of blood or serum from convalescent influenzal pneumonia patients is occasionally of value, though used as late as the fifth day of the disease. When used early, within the first three days, a distinct improvement in all symptoms is to be noted in the majority of cases. It seems to lower the mortality, shorten the course of the disease, and diminish complications.

5. The early employment of convalescent serum, therefore, appears to be a therapeutic measure of definite value.

TREATMENT OF PRURITUS ANI BY IONIC THERAPY.

In the *Boston Medical and Surgical Journal* of August 14, 1919, ROLFE reports excellent results from this plan and states that the electrical apparatus made by the Ritter Dental Manufacturing Company of Rochester, New York, used in the treatment of these cases was designed primarily for the use of the dental profession, but the writer found it well adapted for use in the treatment of certain rectal diseases, by the substitution of suitable electrodes.

Briefly described, the apparatus consists of a portable motor transformer for use with direct current, the function of which is to cut down the ordinary lighting current voltage of 220-110 to 40, which has been found to be the proper voltage for use in ionization work. In connection with this is a small milliammeter with a reading of from 0-10 milliamperes which enables the operator to control accurately the amount of current that is being used.

Two electrodes are necessary—one a large plate of lead or brass about 18 cm. square covered with a layer of felt about 1 cm. thick. This is the negative or indifferent electrode.

The active electrode, which is applied to the affected part in pruritus ani, is made from a circular piece of sheet zinc or aluminum 6 cm. in diameter and bent in such manner as to fit into the fold between the nates. In the handle, which is attached to the center of this plate, is a binding screw for the connection of the conducting cord. This electrode must also be covered with a layer of felt, and is adapted for use with iodine or zinc solutions.

The success of ionic applications depends so much upon large currents acting for a long period of time that great care is needed to adapt the electrodes carefully to the surfaces under treatment in order to avoid irregular penetration. The larger the electrodes the more current can be employed with less discomfort to the patient.

The negative and positive terminals of this instrument are marked and the connecting cords are of different colors, so that it is an easy matter to identify them at a glance. This is an important feature, for the reason that in using zinc solutions, for instance, it is necessary to apply the same with the positive pole, whereas with the use of iodine, which is repelled or driven off from the negative pole, or in other words, electro-negative, the electrode must be connected with the negative pole.

The writer used two solutions in the treatment of pruritus ani; a 2-per-cent solution of zinc chloride in distilled water and Lugol's solution of iodine.

The patient is placed in the right Sims position with legs well drawn up. The large

felt-covered electrode, wet with a 3-percent solution of sodium chloride, is slipped under the right buttock and connected with either the positive or negative wire, depending on whether a zinc or iodine solution is to be used.

It is important to place the active electrode in position before allowing the current to flow through the milliammeter, and also equally important to return the needle of the meter to 0 before removing the electrode for any purpose. By observing this precaution the patient will not experience any unpleasant sensation.

Cases showing a moist, macerated condition of the skin are treated for the first two or three times by the application of the active electrode well saturated with 2-percent zinc solution and connected with the positive or red cord. This preliminary treatment has a stimulating effect on the skin, which becomes somewhat less moist and presents a more healthy appearance. After two or three applications, which should last from fifteen to twenty minutes, Lugol's solution of iodine is used, diluted with 4 parts of distilled water. This is applied with the negative pole and continued in subsequent treatments in gradually increasing strength as the skin becomes more and more tolerant, until such time as the undiluted solution can be employed.

As iodine ions penetrate deeper and at a faster rate than the zinc ions, the time of application can be reduced to about one-half that of the zinc solution. It is well to begin treatments with a mild current of perhaps 2 or 3 milliamperes, gradually increasing the amount until the patient begins to complain of a warm sensation. There is no need of causing pain, and the amperage should be kept below the painful or so-called irritation point.

Cases presenting a dry, thickened, parchment-like condition of the skin are treated from the beginning with diluted iodine solution, the strength of which is gradually increased in the manner already stated.

The applications should be given at least twice weekly, and three times would be better unless the skin shows signs of irritation, which is to be avoided if possible, either by prolonging the interval between treatments or using the solutions in much more diluted form.

The number of applications necessary varies with the chronicity of the case, the long standing one requiring more. It is well to continue the treatments for two or three weeks after the disappearance of the pruritus, but once or twice a week will be sufficient.

As stated above, the length of time that this method of treating pruritus ani has been in use is not of sufficient duration to warrant the belief that a permanent cure has been found, but the writer is confident that this method is of great value.

In comparison with other treatments, it has the advantage of being simple and easy of application, of doing away with the use of ointments, washes, and cauterizing applications, and of perfect safety.

The writer has submitted this brief report hoping that others may become interested to pursue the investigation of the ionic method of treating this most distressing condition.

THE THERAPEUTICS OF OXYGEN.

HALDANE, the eminent English investigator, delivered a lecture at Guy's Hospital, London, recently, and the *British Medical Journal* of July 19, 1919, tells us that the purpose of Haldane's lecture was to explain the evil effects of an insufficient supply of oxygen to the tissues, the manner in which they are brought about, the bodily mechanism by which they are averted or diminished, and the means the physician can take to assist nature while the struggle is going on, the chief of these being the administration of oxygen by inhalation. The hemoglobin in human arterial blood is nearly saturated with oxygen. In addition to this chemically combined oxygen a very small amount of oxygen is present in free solution in the blood, and as the blood passes round the circulation this free oxygen is continuously being passed on to the tissues and being replen-

ished at the expense of the oxyhemoglobin. For the maintenance of the normal state in this respect certain primary conditions must be fulfilled—the breathing must produce sufficient ventilation of the lung, the alveoli must be in good order, the circulation must be effective, and the hemoglobin normal. Failure in any one or more of these respects tends to anoxemia. Further, the respiratory center must be in a state to respond to its normal stimuli. In toxemic conditions the center being poisoned responds less readily, and Haldane considers that the evidence now available makes it probable that one of the most common immediate causes of death is failure of the respiratory center rather than of the heart, though if the former fails the latter must soon fail also.

An observation by Bohr, of Copenhagen, on the great importance of which Haldane insists, is that if the normal proportion of CO_2 in the blood is diminished the hemoglobin holds on more tightly to the oxygen and the oxygen in free solution in the blood is diminished. Forced breathing, which by overventilation diminishes the normal proportion of CO_2 in the blood, produces anoxemia, but Hill and Flack have shown that when the forced breathing is performed, not with air but with pure oxygen, the symptoms of anoxemia are greatly diminished, no doubt because the proportion of oxygen in free solution is restored. It is owing to its acid properties that CO_2 acts on the respiratory center, the activity of which is regulated with minute accuracy in relation to the proportion of CO_2 in alveolar air. But the respiratory center is stimulated also by want of oxygen, to which it reacts still more promptly than the excess of CO_2; the effect of the increased breathing due to this stimulation of the respiratory center may be to take still more CO_2 out of the arterial blood, producing a condition in which the acid element is diminished—that is to say, the hydrogen-ion concentration is lowered; and to this condition the term alkalosis is applied. When this alkalosis is brought about the kidneys and liver at once begin to adjust the balance in the blood, the kidneys by excreting more alkali, and the liver by making ammonia instead of urea; but they need a relatively long time—several days—to produce their effects.

In uncomplicated anoxemia there is a vicious respiratory circle. The respiratory center is exhausted by the anoxemia, and this exhaustion renders the breathing shallow, though it may be rapid; and the shallow breathing, as has recently been experimentally shown, increases the anoxemia. Anoxemia, however produced, is in itself a danger, causing damage to the tissues, which, as in poisoning by carbon monoxide, may persist and cause death even when the cause of the anoxemia is completely removed. But in many of the acute conditions in which, as has been said, anoxemia is set up it is not uncomplicated, for the respiratory center is poisoned and its sensitiveness thereby diminished. The whole of the delicately adjusted mechanism for the maintenance of the oxygen equilibrium falls out of gear when the respiratory center —the man in the car—ceases to maintain efficient control. It is in these circumstances that the value of oxygen inhalation becomes apparent; the defect in the amount of oxygen in the arterial blood can in this way be supplied. It helps to break the vicious circle of anoxemia, and allows the crisis to be tided over—the oxygen exchanges of the organism working at a lower level—until the balance can be adjusted, thus giving the body time for adaptation or recovery.

A conclusion of administrative importance is to be drawn: It is that means for the efficient administration of oxygen should be at hand. Haldane tells us that failure of the respiratory center seems often to occur with dramatic suddenness, usually in the night, and must be dealt with by administering oxygen without the slightest delay. The vicious circle of respiratory failure can produce its effect very rapidly, even in a normal healthy person, and it follows that in a patient whose respiratory center is already weakened by the results of infection the failure may be far more

rapid; fortunately, recovery on giving oxygen is equally rapid. This lesson was learnt during the war in the treatment of men suffering from irritant gas poisoning; the condition was met by the apparatus Haldane describes; but it may also be met, perhaps more effectively, by the oxygen chamber.

CORPUS LUTEUM IN VOMITING OF PREGNANCY.

QUIGLEY, in the *New York State Journal of Medicine* for August, 1919, gives the following results obtained in his practice:

Number of cases treated, 17.

Number of cases benefited permanently, 12.

Number of cases benefited but relapsing, 4 (not enough given).

Number of cases of complete failure, 1.

One case pruritus (no relief).

Average number of doses, 7; had the four relapsing cases been given more at the onset as a routine there would probably have been more cases permanently benefited.

Preparation used: 1 Cc. ampoule containing 0.2 gm. desiccated substance of the gland.

DETAILED REPORT OF CASES.

No.	1st dose.	Last dose.	No. of doses.	Result and Comment.
1	4/5	4/20	9	Fine, neurotic patient.
2	4/14	4/23	5	Fine temporarily, return one month later.
3	6/14	6/16	3	Fine.
4	7/9	7/13	3	Fine temporarily, return in a mild degree two months later.
5	7/21	7/26	4	Much better while under treatment, which should have been longer.
6	10/12	10/20	7	Fine.
7	11/15	11/22	5	Good, last vomiting on 24th, chronic nephritis.
8	2/4	2/15	13	Fair, relief from vomiting partial from nausea.
9	4/27	4/30	5 per mouth	Fine.
10	7/12	7/18	5	Remarkable.
11	8/5	8/18	12	Relief from vomiting not from nausea, tried administration by mouth, no result.
12	12/16	12/18	3	Complete relief from vomiting of moderate extent.
	1/5	1/9	4	Relief from profuse salivation.
13	1/12	1/19	4	Marked relief at first, return in a modified form.
14	3/10	3/14	5	No relief from severe pruritus.
15	3/29	4/4	12	No relief, pernicious form.
16	4/7	4/15	11	Fine, in hospital, ordinary treatment unavailing.
17	5/1	5/7	7	Good, nausea only.

RESULTS FROM TONSILLECTOMY AND ADENECTOMY.

In the *Illinois Medical Journal* for August, 1919, BURKHARDT emphasizes the important fact that if the dignity of tonsil and adenoid surgery is to be maintained, more care should be exercised as regards the examination and diagnosis previous to operation, and we should avoid unnecessary operation and the sacrifice of normal innocent tonsils. Burkhardt is convinced from personal experience that there is a strong tendency, at the present time, to be a little careless in the diagnosis of the indications for tonsillectomy, especially, and to charge up against the tonsil practically every disease to which the human body is liable. This is already arousing justifiable criticism.

The majority of cases of poor results or failures following tonsillectomies are due to carelessness in studying the case, thereby causing the removal of tonsils for the relief of pathological conditions for which they are entirely innocent. This error is more likely to occur where the condition is due to systemic infection. Acute or chronic arthritis, endocarditis, pericarditis, chorea, acute or chronic nephritis, neuritis, osteomyelitis, appendicitis, peritonitis, infectious jaundice, cervical adenitis, and chronic toxemia, are some of the most common diseases which originate from systemic infection; and we realize that the tonsil is guilty and responsible, *per se,* in many cases, for the above diseases.

But while this is true, there are many cases in which the disease is due to some other focal origin, and without proper and careful search for the guilty primary foci the tonsils are assumed to be guilty, and are removed, without proper clinical evidence of their guilt; and if the focus of infection is located elsewhere, in the gums or teeth, the gastrointestinal or genitourinary tracts, the ears, or the nasal accessory sinuses, the results of a tonsillectomy will, of course, prove a failure. This mistake, obviously, can only be made in those cases in which the tonsils are free from infection and are causing no obstruction;

for if they contain infection or are causing obstruction, the safest rule is to enucleate them. It is a pretty safe rule, however, to regard the tonsil as a dangerous focus of infection, until it is proven to be innocent after a careful examination.

But the point he wishes especially to emphasize is that a careful, painstaking examination should be made, before a tonsillectomy, in every case in which there is a disease supposed to be due to a systemic infection, and the tonsil is under suspicion. He believes this will materially increase the percentage of good results.

There is one point which is important, in connection with the examination of the tonsils, especially where they are believed to be responsible for a systemic infection, and that is the appearance of the anterior pillar. If the tonsil contains infection of a chronic character, in the great majority of cases the pillar will have the appearance of a chronic congestion—*i.e.*, a dark-red color. There may be no other history or clinical evidence of tonsil infection or disturbance, but if this condition or appearance of the anterior pillar is present, it is a safe rule to advise the removal of tonsils for infection. This condition or sign of infection is usually found in the submerged type of tonsils.

In that class of cases in which the child is anemic, white-faced, open-mouthed, and catarrhal, a favorable prognosis can be made with some degree of certainty, and in most cases assurance can be given of very excellent results; for after the removal of the adenoids, or both adenoids and tonsils, which are obstructing free breathing or drainage from the sinuses or Eustachian tubes, and perhaps in some cases supplying the circulation with infection, in the majority of cases of this class the child will improve rapidly, and in a short time become almost robust. But while this is true in most cases of this class, we should not lose sight of the fact that there are at least a small percentage in which the results will be disappointing—those children in which operative measures have been so long neglected that there are permanent anatomical changes, or permanent impairment of function; for if there exists permanent impairment of mentality, of the hearing, of the development of the chest, of the development of the face or nose (the typical adenoid face), and the character of the voice, we cannot expect results to be other than only fair. And it is best to be very guarded in our prognoses, and not promise very much in this class of neglected cases, for if we do, the patient, or the parents of the patient, are going to censure the operator severely. The only hope that should be held out is that perhaps the impairment of function will be stayed in its progress, and if there is any improvement in their condition they will be lucky. Of course, if the condition of the throat is causing general anemia, good results can be promised in that respect only.

DIET IN ACUTE DISEASE.

BROADBENT, in the London *Practitioner* for August, 1919, writes on this topic. He is a strong advocate of milk, but is willing to admit that broths and soups constitute an important item in the diet, and may be fortified and rendered more nourishing by the addition of pounded chicken, rice, barley, etc., as described above. He believes that, as a rule, in acute illnesses of short duration, plain soups, broths, and albumen-water preparations are sufficient to tide over the time till the patient is able to take some form of solid food. He further claims, and here we disagree, that it is generally agreed that a fluid diet of which milk forms the basis is the most suitable in enteric fever. The stools should be inspected daily, and, if curds are present, the milk should be citrated, or diluted with barley water. Three pints of milk in the twenty-four hours is generally regarded as a sufficient diet, but he usually supplements this with two to four ounces of glucose or milk-sugar and a pint or more of albumen-water lemonade, to make up in some degree for the deficiency in carbohydrate and calorie value of a milk diet.

Some authors advocate a more liberal and semisolid diet—lightly boiled eggs,

milk or custard puddings, pounded chicken, "fortified" soups, baked or well-boiled potatoes passed through a sieve, etc. There seems to be little risk of such a diet irritating the intestinal ulcers, provided that there is no indigestible residue. In some cases, in which there is meteorism, a semisolid and more concentrated diet may be better tolerated than milk, and it is appreciated in convalescence; but as a rule, in the acute stages, when the tongue is dry and coated, a fluid diet is more suitable and is preferred by the patient.

A large quantity of water is required in acute disease to dissolve and carry off the waste products of the increased metabolism and to flush the kidneys, as well as to replace the loss of water by perspiration and respiration. The patient, therefore, should be encouraged to drink freely of water, lemonade, orangeade, or imperial drink. In typhoid fever, more especially, plenty of water should be given.

Alcohol has a high calorie value as a food, and is a powerful stimulant. It is also a mild diaphoretic and diuretic. It should not be given indiscriminately in all cases of pyrexia. In acute diseases of short duration it is not required as a food, but is often of great service as a stimulant when there are indications of collapse or failing circulation, especially in pneumonia about the time of the crisis. In enteric fever it is useful as a food, and may be given with great benefit as a stimulant in severe cases in the second or third week, when there is low muttering delirium, insomnia, and profound toxemia. Good brandy is the best form of alcohol to administer in acute illness. A definite quantity, two to six ounces in the twenty-four hours divided up into equal portions, should be given at regular intervals. Its effects should be carefully noted.

Sugar has a high caloric value (100 grammes of sugar, roughly 3½ oz. = 410 calories), and is a useful supplement to a milk diet.

Lactose, or milk-sugar, is not nearly as sweet as cane-sugar or glucose, and may be added to milk in the proportion of an ounce to a pint without rendering the milk unduly sweet or unpalatable to the patient.

Glucose is nearly as sweet as cane-sugar. Solid purified glucose only should be used for invalid diet, for commercial glucose has an unpleasant taste. It is too sweet to be given with milk in greater quantity than half an ounce to a pint, but it can be used to sweeten lemonade in greater proportion. These two forms are preferable to cane-sugar in acute disease, because they are more readily assimilable.

DIET IN DIABETES.

LANGDON BROWN, writing in the London *Practitioner* for August, 1919, appends to his article Graham's method of feeding in diabetes which he believes is preferable to the starvation plan of Allen, although the difference is not very material:

Two hunger days. Tea and coffee as desired, and 500 Cc. of bovril and broth, made without vegetables, divided into two equal portions. Water or lemonade, sweetened with saccharin, can be taken *ad lib.*

Followed by—

TWO VEGETABLE AND EGG DAYS.

Breakfast.—Two scrambled eggs, with tea or coffee; 2 oz. (50 gs.) of lettuce, watercress, or tomato.

Lunch.—8 oz. bovril or broth; 1 poached egg on spinach; any green vegetable with 1½ oz. of butter. The total amount of the vegetables for the meal to be 6 to 8 oz.

Tea.—Tea or coffee, lettuce, watercress, or tomato, 50 gs. or 2 oz.

Dinner.—8 oz. bovril or broth; 2 eggs, cooked as desired, *e.g.*, as savory omelette; 6 to 8 oz. green vegetables with 1½ oz. of butter. Water or lemonade as desired.

This diet has a calorie value of 1170 and a carbohydrate intake of about 10 grammes.

"LADDER DIET."

After two vegetable and egg days add 50 gs. of meat or 100 gs. of fish. This raises the calorie value to about 1300. Two days later add 50 gs. of bacon at breakfast and omit one egg. Add another 10 gs. of butter

to the vegetables. The calorie value is now 1595. Two days later add 50 gs. of sardines at lunch, and omit one egg, or if the fish has previously been given, omit this and add 100 gs. of meat. The calorie value is now 1635. Two days later add 50 gs. of ham and omit another egg. The calorie value is now 1795. The quantities of sardines and ham may be doubled if the patient is hungry, and the degree of acetonuria is slight. This brings the calorie value up to 2145.

This diet is generally known as the "ladder diet," and it will be noticed that it takes twelve days to reach the top of the ladder. If the patient is free from sugar when at the top of the ladder, add either 100 Cc. of milk (=4 gs. carbohydrate) or 10 gs. of bread (=6 gs. of carbohydrate in war bread, 5 gs. in ordinary bread). Increase by the same quantity every other day until the limit of carbohydrate tolerance is reached. If the patient is not sugar-free when at the top of the ladder, repeat the whole process.

In general terms, Brown gives two consecutive vegetable and egg days once a fortnight, and two hunger days, followed by two vegetable and egg days, once a month, returning to the standard diet, as determined for the particular patient, immediately after these days. But the details of the after treatment must depend on the individual case. Rest in bed is advisable, at any rate till the calorie value of the food reaches 2000.

INTRASPINAL THERAPY IN NEUROSYPHILIS.

FORDYCE, in the *American Journal of Syphilis* for July, 1919, concludes his paper by stating that the results following the treatment are largely dependent on the age of the infection. For this reason the importance of early diagnosis and energetic treatment has been emphasized.

In early syphilis the spirochetes are numerous, widely disseminated, and cause little or no tissue destruction, organisms accessible to the specific drugs are destroyed, and in favorable cases cures are obtained. In a large percentage of cases, however, the treatment is not carried out in an intensive fashion; as a result the organisms persist in the viscera, cardiovascular or nervous system, and slowly cause tissue reactions and final degeneration.

A serologic cure in cases of syphilis in the late secondary stage and following this is difficult to obtain and requires expert knowledge in the use of our therapeutic agents.

When the central nervous system is invaded the problem is complicated by the highly organized nature of the tissues, the results of secondary degenerations, and the inaccessibility of the spirochetes in certain types of neurosyphilis. In the majority of cases a strain of spirochetes invades the cerebrospinal axis before or during the treatment by drugs by the usual channels and fails to respond to continuous administration of antisyphilitic agents given in this way. The progress of the infection may be delayed by drugs assisted by the defensive forces of the body. It is seldom cured. Clinical symptoms are modified or disappear for a time, but usually return unless the serology of the spinal fluid and blood become negative for a definite period. The control of the pathologic changes in the brain and cord is only possible by repeated examinations of the spinal fluid. We have no definite data as to the number of cases of neurosyphilis cured by the older methods of treatment. Frequent relapses and eventual termination in degenerations in the majority of cases so treated lead to the belief that few were cured. The need, therefore, is for a more direct method of attacking spirochetes in the central nervous system. The intensive use of salvarsan intravenously combined with mercury and potassium iodide cures a definite number of cases. All methods of treatment fail in certain types of neurosyphilis because of the inability to reach the organisms in inaccessible localities and because of secondary degenerations of tissue which cannot be restored. Intraspinal treatment is successful in certain types which fail to respond

to other methods or which become stationary after a definite clinical and serologic improvement.

Success or failure in the use of intraspinal therapy depends on the technique employed and the persistence of the physician in carrying it out. Above all it depends on the cytobiological indications which are present in the spinal fluid for initiating or persisting in this mode of therapy.

The cytology is usually the first phase to be influenced in persistent infections. In some cases treatment must be continued from one to two years before a definite impression is made on the globulin content or the Wassermann reaction. Modification in the intensity of the globulin reaction is usually followed by a weakening in the strength of the Wassermann and by a change in the gold sol reaction.. Rapid changes in the Wassermann reaction when strongly positive in the high dilutions do not occur except in cases of early syphilitic meningitis. In old cases of neurosyphilis a gradual diminution in the intensity of the Wassermann reaction is of good prognostic import, and when it finally becomes negative, cases that he has examined after one, two, and three years have shown no return of any of the previous phases.

DOSAGE AND METHODS OF ADMINISTRATION OF DIPHTHERIA ANTITOXIN.

SEARS, in the *Albany Medical Annals* for July, 1919, discusses the question as to the method of administration of antitoxin. One of the things he takes up is to settle what we expect to do with antitoxin. Schick has worked out a very excellent scheme for dosage. He states that in 90 per cent of cases we should give 100 units for each kilogramme of weight.

1 kilogramme—2⅕ lbs., then 100 units should be given to a child of 22 lbs.

Double that makes 2000 units for 44 lbs. weight.

4000 units for 88 lbs.

6000 units for a normal adult of 132 lbs.

For immunizing, use one-half of therapeutic dose. In laryngeal and severe cases two to four times the amount is given.

He has found in an experience of a good many cases that that is practically all that is necessary in a majority of the cases. One gives antitoxin in about these proportions, and if given early this is practically all one has to do. Sears was health officer of Syracuse very soon after antitoxin came out, and at that time while the majority of physicians were beginning to put a great deal of faith in diphtheria antitoxin, there were some notable exceptions—among them was a doctor on the staff of the Willard Parker Hospital in New York City who opposed it. Sears went down to that hospital to see what the trouble was, and found that in his wards his cases were practically all laryngeal, and, of course, giving the ordinary dose did not relieve them.

How shall we administer antitoxin? Sears thinks the method a very important point. If one has a comparatively mild case, perhaps it is as well to give it subcutaneously, because in some cases one wishes the antitoxin to absorb rather slowly, especially if one is afraid of anaphylaxis; so in the mild cases the subcutaneous method is desirable. If one wishes to get a little more rapid absorption it is better to give it into the muscles.

There is another point which Sears does not think the majority of people understand. If one has a fulminating case and the patient shows severe toxemia, do not hesitate to give it intravenously. If it is to be given by the vein, one wants to be a little more sure that the patient is not going to react to horse serum. While this condition is very rare, Sears does not think it should be ignored. Warm the antitoxin to blood temperature and inject it slowly into the vein and the antitoxin effect is immediate. He cautions all to make careful inquiry regarding asthma. One should always find out if the patient is an asthmatic, because danger of a quick anaphylactic shock is great in such cases. A death occurred recently in a little child in Syracuse—the doctor had evidently forgotten or had not thought about it, but when he inquired

afterwards he found that the patient was an asthmatic. It is always wise to find out if the person to whom one is giving antitoxin is an asthmatic, and especially if he is sensitive to horse odors. If a person is sensitive one can give about one-fifth to one-tenth of a cubic centimeter, wait twenty minutes and perhaps double that dose and wait three-quarters of an hour. By this precaution the chances are the patient will be completely desensitized and one can go on giving full doses.

Then there is another method by which one can easily tell whether a patient is sensitive to horse serum—that is, by taking one-tenth of a cubic centimeter of any horse-serum product and injecting it intracutaneously as one would for the Schick test. If one injects this amount of ordinary horse serum and waits for an hour or two, one can easily tell whether that person is sensitive to the serum. There is no reason why one cannot give horse products in any case if one bears in mind these points. The most important fact, of course, is ragarding asthma. One may never encounter anaphylaxis. It has only happened once in Syracuse to Sears' knowledge, but the fact that it does happen should put us always on guard. Sears says the above table is a fairly good basis for the dosage of antitoxin. He does not advise giving it every three or four hours as some suggest. Give it early and give a single sufficient dose. One gains nothing by using more antitoxin than is necessary to unite with the toxin circulating in the blood no matter how severe the clinical symptoms may be.

TRANSFUSION IN INFANTS AND CHILDREN—THE INDICATIONS AND DANGERS.

KOPLIK, in the *Archives of Pediatrics* for June, 1919, states that in the field of transfusion in the new-born and in infants and children vast advances have been made in the direction of life-saving.

The application of transfusion in the new-born is as follows: (*a*) In cases of uncontrollable hemorrhage from wounds, umbilicus, or scalp hematomata; (*b*) in forms of frank melanemia with hemorrhage from the intestines—the subcutaneous and gastric hemorrhages; (*c*) concealed melena, in which the outward objective signs of hemorrhage are slight, such as occasional ecchymosis on the surface, but in which the evidence of internal hemorrhage is great, such as critical loss of weight; intense anemia, amounting to phenomena of exsanguination; very slight signs of hemorrhage from the intestine, with marked hemorrhage into cavities, such as the subarachnoid space; (*d*) cases of severe and continued hemorrhage in the new-born from surgical wounds such as circumcision, hemorrhages which are of parenchymatous character and are exsanguinating to a degree. In these cases he concludes, as in the cases in which the hemorrhage occurs beneath the scalp, that there is a congenital condition present, a hemophilia.

In hemorrhage of the new-born, the greatest success occurs in cases in which the condition is promptly met by transfusion, and this in a positive manner—that is, by direct introduction of blood or citrated blood into the circulation of the patient.

There are two methods from which to choose, and the time is scarcely ripe to decide in favor of either. One method is that of direct introduction of full blood from the donor to the patient's circulation —the Unger or syringe method (Lindemann) and the so-called citrated blood method (Lewisohn). The advantage of the direct blood, unadulterated, is evident in all cases when we can test the donor and recipient for hemolysis. The advantages claimed for the method of citrated blood are: First, that the blood could be transported from donor to recipient at some distance; again, that in a great emergency the tests for hemolysis are not necessary in the citrate method. He has used both methods and found both applicable. In many cases the surgeon still lacks the delicate skill in technique, and many failures may be due to this. It is extremely

dangerous to decide that one method is superior to another unless cases come out of the hands of the same operator who has handled both methods. He has never seen a failure due to full normal blood or citrated blood; it has always been the technique which he would criticize. He has seen cases in which the subcutaneous introduction of serum has absolutely failed to control hemorrhage, or even the subcutaneous introduction of whole blood. In these cases, if they lived, a single definite transfusion succeeded in combating symptoms which the serum and subcutaneous introduction of blood failed to control. The improvement in the patient's condition takes place even where symptoms of sclerema, which was often regarded as the forerunner of a fatal issue, set in. Temperature also is not a contraindication for transfusion. Congenital syphilis, with melena, does not contraindicate transfusion. In the new-born, after comparison of methods, though in some emergencies the subcutaneous introduction of blood did well, many cases, which were lost by simple subcutaneous infusion of blood or serum, he felt might have been saved by the more radical methods. The histories of such cases are related.

In hemophilia in late infancy and childhood, transfusion was uniformly successful in combating the hemorrhages even where large amounts of blood had been lost.

In a case of pernicious anemia, a very rare condition in childhood, two transfusions of 140 and 120 Cc. of citrated blood initiated an improvement and the child went on to recovery, and is now four years of age and normal in every way. In this case the hemoglobin was reduced as low as 15 per cent at one time and mounted to 44 and 34 per cent after each transfusion respectively. The spleen in this case was enlarged and the question of its removal debated and rejected after frequent consultation.

Transfusion is useful in acute diseases with tendency to hemorrhage.

Acute and chronic leukemia are not permanently benefited by transfusion, and purpuras of all varieties are not improved as to the purpuric condition by the introduction of new blood into the system. Henoch's purpura is particularly rebellious to treatment. In several patients, who ran a low temperature with endocarditic crises, due to an infectious endocarditis, transfusion was employed without success. In these cases the hemoglobin index improved immediately after transfusion, but fell rapidly to the initial index, and the patient sank even more rapidly than one would expect even if transfusion had not been practiced.

There is one form of streptococcus invasion which, if intensively transfused and repeatedly, may improve after the introduction of new blood, and this is the form of blood sepsis which does not affect the heart itself. In one case of sinus thrombosis, resulting from the ear infection, as many as eight repeated transfusions were performed by the Lindemann method. These tided the patient over repeated crises, and recovery ensued in spite of complications in the pleura and joints.

In certain septic infections, Koplik has advised the removal of blood in order to make way for the introduction of new blood in large quantity, thus avoiding the danger of overloading the circulation.

In a few cases of postinfluenzal nephritis, the writer has employed blood transfusion when the patient was fast sinking and the urine showed the presence of blood. The transfusion of whole blood in this case caused not only a cessation of bleeding, but the nephritis recovered completely. On the other hand, many patients with the same affection are transfused without success; the physician waits too long.

There are a variety of conditions in infancy and childhood in which, if transfusion is performed in a rational way, it might be a life-saving operation. He has no patience with the indiscriminate use of transfusion, nor with its use as a last resort. There should be a very definite idea or indication to the performance of transfusion if the whole method of therapy is not to be brought into disrepute.

THE NATURE OF CANCER.

BENEDICT (*American Journal of the Medical Sciences,* June, 1919), in a discussion regarding the nature of cancer, states that there is no general established principle which will enable us to either affirm or deny that malignant involvement of different types of cells is due to the same essential cause and hence constitutes one disease. Most of the so-called malignant diseases, aside from carcinoma, are extremely rare, even sarcoma being by no means common. The vast majority of cancers occur in organs in which epithelium in the strict sense hypoblastic or epiblastic is frankly available. Even if it were shown that all true cancers occurred primarily in organs containing epithelium, as the vast majority certainly do, this would not absolutely disprove the theory of rests. The area of the skin and of the mucous membrane of the alimentary canal is about the same, 15,000 square cm., but in males the former has a little short of 3 per cent of all cancers, the latter more than 74 per cent. In females the respective ratios are 2½ per cent to 50.2 per cent. This means that the susceptibility of the internal not entirely hypoblastic epithelium is 20 to 25 times as great as that of the skin. The stomach, with approximately one-sixth the epithelial area of the intestine, has eight to ten times as many cancers; or, in other words, shows somewhere as much as 50 to 70 times as much susceptibility. If we subtract the sex organs, including mammary cancers, from the total cancers of women we find fewer female than male cancers for any recent census year in the United States. But the difference is almost exactly the same as that between male and female deaths. The incidence of the two sexes is then about even if we consider that cancer of the sexual organs in the female may be regarded as an element added.

There is at present no direct evidence of a germ and no indirect evidence, geographic, racial, dietetic, etc., pointing to any definite extrinsic cause of cancer. Except by analogy from neoplasms of the lower animals which are not necessarily identical with human cancer, even though histologically similar, there is no valid evidence of a specific infectious element, such as exists without reasonable doubt for various diseases, including several exanthemata of undiscovered germ. The word germ, by the way, is used without apology, to indicate the broad nature of the etiological problem in this regard. The development of cancer seems to depend upon the susceptibility of a special part of the body, but no plausible predisposing cause, as age *per se,* or as indicative of metabolic changes, traumatisms, gross or mild and repeated, preëxisting non-cancerous lesions, general state of depression or bad hygiene, has, so far, been satisfactorily reduced to the "with or without" test. That is to say, no plausible cause assigned as favoring the development of cancer in a given case necessarily has the same result in all or even the majority of cases, while, on the other hand, cancer of any part may develop without any of the plausible causes used to explain other cases. In plain words, we cannot prophesy with more than a small chance of fulfilment that any exposure or lack of caution, or antecedent disease, will result in cancer. The proportion of fulfilments is indeed so small that we can scarcely regard it as more than a coincidence. About the only advice we can give to prevent the development of cancer, and even then without absolute assurance, is not to subject any part to a repeated irritation of any kind, not to bear children, and to die before the age of forty.

It has been well established that heredity plays no notable part in cancer. Given a large family in near generations, or, what really amounts to the same thing, a familiarity with family history, almost any cancer case will afford a history of cancer in the family. Otherwise, instances of apparent family tendencies are shown to be pure coincidences by the sporadic occurrence of other cases without similar family history. There is no evidence that any-

thing approaching specific immunity explains the incidence or non-incidence of cancer. So far as can be judged, its occurrence is either according to the law of chance or due to local susceptibility. As previously implied, if it could be shown that a cured case was immune, very definite conclusions could be drawn. But, on the one hand, the chance of a subsequent independent involvement with cancer of a case from which cancer has been removed, and which has survived for a sufficient length of time to warrant a belief in cure, is very slight, so that the infrequency of such cases is no argument for the acquirement of a true immunity; on the other hand, that such cases occasionally occur shows that such an immunity is not absolute.

TREATMENT OF HODGKIN'S DISEASE.

BURNHAM (*Surgery, Gynecology and Obstetrics,* May, 1919) observes that few morbid processes present greater variations in rate of progress and more protean clinical manifestations than does Hodgkin's disease. Its course may be run in a few weeks or extend over years. Tumefaction may be pronounced and the constitutional disturbance slight; but often the exact reverse is true. The primary lesion may appear in the neck, in the mediastinum, in the abdomen, or in all these places simultaneously. The patient may come to us for help for pruritus with or without skin rash, for a chronic cough or dyspnea, for edema of the leg, or for an invasive breast growth. Periods of quiescence and rapid progress alternate in some cases; in others there is a steady march of the disease. Without treatment all recorded cases have ended in death.

Exact diagnosis is necessary as a preliminary to adequate treatment, and such diagnosis rests on *x*-ray, blood and tissue examinations as well as on a careful general physical examination.

In the advanced stages, tissue examination is the most reliable single criterion. By this method the typical Dorothy Reed Hodgkin's disease, lymphosarcoma, tuberculosis, syphilis, and the metastatic tumors are readily separable. In very early lesions it may be impossible to distinguish between lymphosarcoma.

The treatment of Hodgkin's disease is most unsatisfactory. A few apparent cures from salvarsan and other forms of arsenic are on record. The author believes that when arsenic is forced it tends usually to make the disease progress more rapidly.

Vaccines made from the diphtheroid organism have been extensively used but with indifferent results. He states that he has had no personal experience with them.

Under the influence of the splendid work of Bunting and Yates, there has been a marked revival in favor of surgical removal of large glands—a procedure which had been well-nigh abandoned because of the impression that it was not only useless but harmful. There can be no question, however, that their more satisfactory experiences are due to the invariable and immediate employment of *x*-ray treatment in conjunction with the operative removals.

X-ray therapy in Hodgkin's disease is not new. It has been widely practiced ever since Nicholas Senn's report now nearly twenty years ago. That the *x*-ray has a very beneficial effect both in ameliorating constitutional symptoms and in reducing tumor there can be no question. Nevertheless, few if any authentic cures by this method are on record.

Better results are obtained in cases in which the tissue examination shows lymphosarcoma than where it shows Hodgkin's disease, and in Hodgkin's disease where the characteristic polymorphonuclear leucocytosis is not present.

Chronic cases are more favorable than acute. Intensive prolonged exposures, very satisfactory in some chronic cases, are quite unsuitable in acute cases.

In a chronic case limited to one set of glands a single exposure may lead to a cure, which has, in one case, extended over five years. Heavy exposures in acute Hodgkin's disease are usually followed by rapid re-

duction in the size of the gland masses, but with no corresponding improvement in the blood or the patient's general condition. In these acute cases rest in bed, forced feeding, and mild fractional radiation are indicated. This method of treatment the writer has used for only about one and one-half years, and is consequently unable to report on the results. Acute cases treated more than one and one-half years ago with the heavy dose method are dead, with the exception of Miss R. F., aged eighteen. This girl was admitted to the hospital on April 6, 1916, with high fever, a great mass in the abdomen, and another in the chest; she was extremely emaciated and evidently dying. Under treatment there was apparent complete cure lasting for more than one and one-half years. There was then an extensive abdominal recurrence, which is at the present time yielding to treatment.

Rest and abundant feeding are of great importance in the chronic cases. Heavy work and exposure readily lead to relapse.

The most unsatisfactory chronic cases are those with very little glandular enlargement but with marked constitutional symptoms and changes in the blood. In two or three cases of this kind met with there has been but little amelioration of the patient's condition following treatment.

In every case in which the infection is limited to isolated groups of glands, such as one side of the neck and axilla, a complete disappearance of the glands can be looked for with confidence. Where the disease is extensive, especially in mediastinal cases, this is more uncertain.

In chronic Hodgkin's disease the disappearance of the gland masses is almost invariably accompanied by improvement in general health, gain in weight, disappearance of pruritus, and the return of the blood to a normal appearance.

The reduction of gland masses, amelioration of discomforts and improvement in general health already referred to occur in most cases and sometimes are most striking in the very advanced stages. It seems to the author that we may confidently look for permanent cure in an increased proportion of these patients with further improvement in our methods of treatment. It is, of course, impossible to fix any definite limit as an indication that the disease will not recur. The author recently had the experience of an extensive abdominal recurrence and death in a patient apparently well for four years from a pharyngeal and neck lymphosarcoma.

Excluding all patients where apparent cure has been less than three years, he has had, where lymphosarcoma was diagnosed, two cases perfectly well and without signs of trouble for more than five years: one an extensive neck case, and one an abdominal case. Four cases have been apparently well for over three years: one with pharyngeal and neck involvement, one with mediastinal, one with tonsil, neck and groin, and one case with neck and axilla involvement.

Excluding all patients where apparent cure has been less than three years, the writer has had, where Hodgkin's disease was diagnosed, one patient with mediastinal and neck involvement well for four years, and two cases well for more than three years. One of these had neck, axilla, groin, and iliac glands; the other groin, axillary, neck and mediastinal involvement.

While there is no objection to the complete surgical removal of a localized group of glands, if it is followed by radiation, it does not seem to the author that this is necessary.

THE ROLE OF FOCAL INFECTIONS IN PSYCHOSIS.

COTTON (*New York Medical Journal*, March 15, 1919) concludes his clinical study of this subject as follows:

Chronic, masked, or focal infections play a very important rôle in the etiology of the psychoses. The origin of most chronic streptococcus infections is in blind alveolar, or apical abscesses. The organisms concerned in this infection spread from the teeth to other regions, notably the tonsils, stomach, duodenum, and lower intestinal

tract, and these infections may therefore persist after the teeth have been extracted. The organisms concerned in local infection belong to the slow-growing, non-pus-producing type, which are, however, extremely toxic. The short chain or non-hemolytic streptococcus group (the Connellan-King diplococcus), the staphylococcus aureus, and virulent colon bacillus are the bacteria that are most common in this type of infection. Infected teeth are due to a large extent to *(a)* faulty dental work, such as gold crowns, caps, and pivot teeth; *(b)* habitual neglect of the teeth; and *(c)* infection by contact with parents, family, and friends, by kissing, use of common articles and eating utensils.

A thorough search for chronic infections by all means at our disposal is imperative, and the removal of such infections will clear up certain mental conditions when other means have failed.

Prophylaxis in mental diseases should include the education of physicians and the public in regard to the danger and menace to both physical and mental health, of infected teeth, and the difficulty in locating such teeth without a complete *x*-ray examination by a man competent to interpret the radiograms when they are taken. Dentists should be brought to realize the damage they are doing daily by faulty dental work. Many psychoses could be prevented and chronic psychoses cured if the principles discussed in this paper were followed. Bacteriological examination should be an essential part of the work in every hospital for the insane.

ENCEPHALITIS LETHARGICA.

VEST (*West Virginia Medical Journal,* June, 1919) observes in regard to this infection that the manifestations are varied, as is shown by a symptom-analysis based on the twenty-five case histories studied in the preparation of the paper. Fever is the commonest symptom, having been definitely present in twenty-three cases, with the record incomplete in the other two; a known percentage of 92. Lethargy, the second most frequent finding, was present in 18 cases, or 72 per cent of the total. Based on the two commonest symptoms, then, we might just as properly call the disease "sleepy fever" as "sleeping sickness." Fifteen had double vision, and two others blurring of images. Paralysis or visible weakness of the muscles of the face was present in twelve cases, while vertigo was recorded in eleven. Of eight fundus examinations, only one presented an abnormality, a unilateral blurred disk. There was definite constipation in eight cases, and drooping of the upper eyelids was as frequent. Rapid pulse was common, the rate being above 100 in seven out of eleven instances, in which it is definitely reported. Neuralgic pains were fairly frequent, seven instances being noted. Delirium, stiff extremities, dysphagia, and rigidity of the back muscles were each present six times. It is probable, too, that the "lead-pipe" phenomenon, noted by Ely in two cases, is the same condition as is nominated rigidity by other observers. Photophobia, headache, difficult speech and choreiform movements were equally present, each being noted five times. Irregularity of the pupils was seen in four instances, while nystagmus was recorded as often. Four were nauseated, two of whom vomited. Stiffness of the jaws was noted three times. Four cases were ushered in with pharyngitis and one with rhinitis. Three were recorded as unable to whistle. Two had limb paralyses. Two had morning somnolence, but in another case the lethargy was most marked in the afternoon. Markedly coated tongue was thrice noted. One, a colored man, had a voracious appetite. Labial herpes was present once and an irregular pulse once. One patient had hemorrhagic blisters on the heels. Sensation was uniformly normal.

The blood findings are usually negative. Of twenty total white counts the highest was 16,400 and the lowest 4400. But three were above 10,000, and only two below 7000. The average was slightly above 8400. The highest polymorphonuclear per-

centage was 74 and the lowest 45, with an average of 69. The remainder of the differential count varied in no way from the normal. The Wassermann reaction was one plus in two instances. The blood-pressure was normal whenever recorded. No blood cultures showed a growth.

The urinalyses were uniformly normal, except that in one instance a moderate amount of albumin was found, and in another acetone.

The spinal fluid was uniformly clear. The cell counts varied from 4 to 85, with an average of 24. In some instances a moderate percentage of polynuclear cells was found. Thus it seems that we are justified in believing that moderate pleocytosis is a common finding. Globulin was one plus in eight cases and negative in ten. Of eight sugar determinations, only one was found negative. The fluid Wassermann test was uniformly negative.

Lethargic encephalitis is no respecter of persons, ages, or sexes. In this series the youngest was six and the eldest sixty-two. Two were in the first decade of life; three in the second; seven in the third; seven in the fourth; five in the fifth. Then we skip the sixth and find one in the seventh. Fourteen were male and eleven female. Of the fifteen from civil life, females were twice as commonly affected as males. In the army cases, naturally, males are largely in the majority, only one female case being reported, that of a nurse. There is a preceding history of a definite attack of influenza in seven cases only. However, the writer observed, either at the bedside or the post-mortem table, in unquestioned cases of influenza, hemorrhage from the nose, bronchi, lungs, beneath the pleura, into the lung tissue, the pleural cavity, both recti muscles, and the muscles of the back, with one case of probable gastric hemorrhage. With hemorrhage the essential pathology of "sleeping sickness" then, it does not require a very great stretch of the imagination to consider this condition encephalic influenza. In Europe, von Weissner has recovered a gram-positive diplo-streptococcus which he believes to be the cause, but others do not confirm his work. All efforts in America to isolate a definite etiological microörganism, so far reported, have been fruitless.

The newspapers to the contrary notwithstanding, the prognosis is not always grave. Of this series of cases, six died, a mortality rate of 24 per cent. Usually the facial palsy and the lethargy persist considerably longer than the fever, and often set in as the fever begins to decline. The weakness following may last a month or two.

Rest in bed should be insisted upon until all danger is past, especially in those cases with a rapid pulse. Liquid diet should be given during the febrile state, with thereafter a gradual return to solids. Water should be given freely and the bowels kept well open. Scopolamine is the best drug for delirium and violent choreiform movements. Morphine is contraindicated because it promotes somnolence, increases cerebral congestion, depresses the respiratory center, and promotes the excessive accumulation of CO_2 in the blood stream. The therapeutic measure of most value is spinal puncture. This procedure, and the withdrawal of a reasonable amount of fluid, relieves the lethargy and lessens any increased intracranial pressure. Besides it is often a diagnostic necessity as a matter of excluding cerebrospinal meningitis. When carefully done spinal puncture is practically free from danger, and it is advised as a routine in all cases with marked somnolence, rigidity of the neck and spine, and, as a diagnostic measure, when for any reason meningitis cannot be definitely excluded.

GORDON (*New York Medical Journal*, May 17, 1919) describes three cases which he believes point to the existence of two types of encephalitis: a superior and an inferior, according to which cranial nerves are involved. All the anatomical considerations tend to show that encephalitis lethargica does not present special new findings. The disease has been known before. Encephalitis and polioencephalitis with or with-

out somnolence are old nosological entities. Their clinical manifestations and anatomical peculiarities are well-known facts. Netter, however, is inclined to consider encephalitis lethargica as an autonomous affection due to a virus which has a special predilection for the mesencephalon. What this virus is, and whether it has a certain relation to the infection of influenza, have not been sufficiently determined. There is considerable uncertainty as to the pathogenic agent and the nature of influenzal toxins. Encephalitis has been observed after other infectious processes. Raymond, for example, observed it after paratyphoid fever, pneumonia, bronchopneumonia. The question of autonomy of encephalitis lethargica until further proof cannot be decided at present without further information with regard to more extensive anatomical and bacteriological investigations.

THE DIAGNOSTIC VALUE OF LOWERED BONE CONDUCTION IN SYPHILIS.

GOECKERMANN, BARLOW and STOKES (*American Journal of Syphilis,* April, 1919) state that three tuning-forks are necessary for this test: one the vibration rate of which is 128 per second, one 256, and the third 2048. The forks are set in vibration either by stroking rather vigorously, or by striking the fork on the knee or on the palm of the hand.

After examining the ears of the patient for other pathologic conditions the 128 fork is set in vibration and is placed on the vertex of the skull of the patient, equidistant from the ears, and note is made of the equality of the tone as heard in both ears. Should there be a marked difference between the two ears, this must naturally be taken into account in any further examination and in the final interpretation. This test is known as the Weber test.

The fork used in the first test is set in rapid vibration, but this time it is simply held near the ear of the patient until he no longer hears it. The number of seconds that the patient hears the fork is noted. The examiner thereupon listens to the fork himself, noting the number of seconds that he hears it. Both ears are tested, in this way giving the value of the low limit. The 2048 fork is then used, in like manner giving the high limit of the patient's hearing.

This is the most important phase of the test; the comparison of the conduction of sound through bone in the patient, as compared with that in the examiner. The 256 fork is set in vibration by striking smartly against the palm of the hand, and the stem of the fork is held firmly to the mastoid process about the level of the superior margin of the external canal, and just behind the ear. The patient is asked to note carefully when he no longer detects the tone of the fork, at which time the examiner conveys the fork to a corresponding position on his own mastoid and carefully observes whether he hears the fork longer than the patient, and if so, how much longer. The number of seconds the operator hears the fork after the patient ceases to hear it is expressed in terms of the patient's deficiency, as minus seven seconds or minus eight seconds, or whatever the numerical value may be found to be. If the patient hears the fork through bone longer than the examiner he has an increased bone conduction, which is designated as plus whatever the number of seconds may be. If the patient does not hear the fork as long as the examiner the patient's bone conduction is said to be decreased or lowered. This test is performed on both ears and constitutes the Schwabach test.

The Rinne test is next done, which consists in comparing the conduction of sound by bone in the patient with his air conduction. This is obtained by holding the fork opposite the patient's external meatus after he has ceased to hear the sound through the bone. This test is essential to classify the type of deafness if any be present. Normal hearing shows air conduction of longer duration than bone conduction, and is called a positive Rinne test. The acuity of hearing may be tested for whispered voices, but this is not essential as the bone conduction test is a tuning-fork test.

In the carrying out of these tests, the patients were always examined in the same room, with the same set of tuning-forks, about the same time of day, and by the same otologist. The perceptive power of the patient was also considered.

In conclusion it is believed that the so-called lowered bone conduction test (reduction in conduction of sound by bone as compared with otherwise normal hearing) is positive in 78 per cent of known syphilitics.

From the otologic standpoint the test is only of value if a complete hearing test is done.

The efficiency of the test varied greatly in different types of syphilis, being at its best in late cutaneous syphilis (100 per cent), latent syphilis (80 per cent), syphilis of the central nervous system (80 per cent). It has almost no value in osseous lues, and the results in early syphilis are inconclusive (too few cases). A negative Wassermann test combined with a negative bone conduction test is strong evidence of the absence of syphilis.

The test agrees with the positive or negative diagnosis of syphilis in 67 per cent, and disagrees in 33 per cent.

The test is also positive in 48.7 per cent of patients in whom syphilis could apparently be excluded.

It has, on the whole, therefore, only a restricted value as a diagnostic aid, owing to its high factor of error.

ROENTGENOGRAPHIC DIAGNOSIS IN RENAL TUBERCULOSIS.

Braash and Olson (*Surgery, Gynecology and Obstetrics*, June, 1919) regard the roentgenographic data in renal tuberculosis as of such importance at the Mayo Clinic that it is a rule to make a complete examination of the urinary tract in every case in which this condition is suspected. The frequency with which positive data may be obtained in the roentgenogram is evidenced by the fact that in the years 1916 and 1917, 131 patients were operated on for renal tuberculosis, and roentgenographic examination of the urinary tract had been made of all. Of this number positive shadows suggestive of renal tuberculosis were found in thirty patients. It may be stated, therefore, that approximately one out of five patients with renal tuberculosis will have positive roentgenographic data of definite diagnostic value. Such data are of particular value in conditions as follows:

When because of the contracted condition of the bladder or impassable stricture of the ureter, the cystoscopic findings are inadequate.

When the cystoscopic findings are not typical of renal tuberculosis.

When the clinical findings are not suggestive of renal tuberculosis or of any involvent of the urinary tract, as may occur with a closed tuberculous pyonephrosis.

In the presence of bilateral renal tuberculosis when the typical shadows frequently render cystoscopy or further clinical examination unnecessary.

The roentgenographic shadows are caused by the deposit of calcium in the tuberculous area and may assume a variety of forms. To one who has had considerable experience in roentgenographic interpretation, such shadows will have characteristics that are usually recognized. They may be differentiated from a stone shadow by the variability of density, as the shadow is irregularly concentrated in different portions; by a shadow of lesser density throughout than that usually observed with stone; and by its irregular and indefinite outline. The calcareous area may, however, simulate the shadow of a renal stone in every particular, and it may be quite impossible to differentiate it without further clinical data. The same is true of renal stones that are occasionally seen of such consistency that the shadow will be fully as irregular and hazy in outline as a typical tuberculous shadow. It may be said, however, that approximately 75 per cent of tuberculous renal shadows may be recognized as such in the roentgenogram.

On resection of the kidney, an examination of the areas casting shadows in the roentgenogram will show a considerable variability in the nature of the calcareous deposit. Usually two definite types are

recognizable, namely, actual deposits of lime encrusting the ends of the calyces, and caseated areas containing a sufficient deposit of calcium to cast a shadow. Tuberculous shadows may be roughly classified under three groups: (1) multiple scattered small areas; (2) single or a few localized areas of one centimeter or more in diameter; and (3) large irregular, diffuse areas involving either a large portion or the entire kidney.

In the first group the small scattered areas are generally caused by lime deposits. They are occasionally seen singly, and appear as elongated, irregular faint streaks, or as multiple punctate areas, scattered over a large portion of the kidney, usually in one of the poles. Unless the renal area in the roentgenogram is carefully examined such areas easily may be overlooked.

The second group representing single or several isolated areas of concentrated calcareous deposit is the type most easily confused with stone. The shadows are usually of several varieties: (1) a shadow of irregular outline with a consistency dimmer than that seen with renal stone and varying in size from 1 to 3 or 4 centimeters; (2) a shadow characterized by great irregularity in its consistency and outline, somewhat resembling filigree work; and (3) definite shadows with a density and contour suggestive of stone. The size of the shadow in no way indicates the extent of the tuberculous lesion. A shadow of only a centimeter or two in diameter may be present in a tuberculous lesion involving the entire pole or even the complete kidney.

The third group is characterized by large, regular rounded shadows of variable density in their various portions. As a rule, on section the kidney is of a putty-like consistency in the area which causes the shadow. It is, however, impossible to say from the appearance of such caseated areas whether or not a shadow will be present in the roentgenogram. In two caseated areas of similar appearance one may cast a shadow and the other none at all. Occasionally the calcium deposit is so slight that a soft diffuse shadow will be seen only on careful plate reading, and it may be easily confused with similar shadows cast by the bowel.

Shadows caused by complete caseation of the kidney are most striking. They may assume the outline of a complete cast of the kidney and are usually irregularly lobulated. The shadow may vary in density in different portions of the kidney, some of which may be so dim as to be scarcely discernible, while others may be definitely and strikingly outlined. Occasionally, with complete or extensive calcification, the calcium deposit may be so slight that the *x*-ray simulates that of accentuated normal renal outline, and it may be difficult to determine whether or not it is an actual pathologic shadow.

Actual renal stone formation is rare in tuberculous kidney. When it does occur it is generally a phosphatic stone, formed in a localized abscess with necrosis and secondary infection. The authors have observed this in several cases. Stone formation in the opposite kidney in cases in which a tuberculous kidney had been removed occurred in but two instances that came under their observation. One patient passed a small renal calculus from his remaining kidney two years after the other kidney had been removed for tuberculosis. It may be inferred that primary stone formation is unusual in patients with renal tuberculosis.

The value of roentgenographic diagnosis of renal tuberculosis does not appear to be fully appreciated.

Routine roentgenography in every case in which there is evidence of infection in the urinary tract is advisable.

Shadows may be found in approximately 20 per cent of patients with renal tuberculosis. Such shadows may require the aid of cystoscopic data in their interpretation.

Positive evidence of tuberculosis may be obtained by this method when all other clinical data fail, and when cystoscopic examination is impossible.

Shadows due to renal tuberculosis may be arranged into three definite groups.

Caseated areas in the ureter and prostate may also be outlined.

Pyelography is occasionally valuable (1) in the identification of renal infections of doubtful nature, and (2) in the identification of doubtful shadows in the renal area.

The cystogram may also give data of value.

A NEW METHOD OF TREATMENT FOR SUPPURATIVE ARTHRITIS OF THE KNEE-JOINT.

EVERIDGE (*British Journal of Surgery,* April, 1919) says that in spite of the dramatic progress in the surgical treatment of penetrating wounds of the knee, suppurative arthritis of this joint, when it occurs, has remained a condition often defeating our most painstaking endeavors.

Its treatment has been attempted by both surgical and chemical methods, the former having for their object joint drainage, the latter aiming at the destruction of bacteria by the application of one or another antiseptic. That joint drainage by purely operative measures is unsatisfactory is manifest from the multiplicity of methods which have been described from time to time. Anterior and posterior incisions, the turning up or turning down of a patellar flap, joint resection—all have had their adherents. The drainage tube inserted in the interior of the joint has long since been discarded. Similarly, the diversity of the antiseptics that have been used indicates the uncertainty of the action of each one of them. Either it is too irritating and still further lowers the vitality of the articular components already almost overcome by the septic processes, or, if it is non-irritating, its germicidal effect is so weak as to make its use of doubtful value. Further, to diffuse the antiseptic to all the numerous articular recesses where the germs lie hid is, in practice, impossible. The ideal antiseptic, in fact, has not yet been discovered.

After operating upon penetrating knee-joints, it has been almost the universal practice among British surgeons working in the war areas to adopt strict immobilization in the Thomas splint for at least ten days, and often much longer, after the temperature has settled. Should suppuration occur, complete immobilization has been, more than ever, the unchallenged principle in treatment.

The alternative treatment is consistent with physiological and pathological axioms, though in disagreement with the well-known doctrines of Hilton. It relies for its curative effect on active movements of the joints of the lower extremity, including the knee. It must be emphasized, however, that adequate openings into the infected joint must first have been established to allow the free escape of synovia and pus; otherwise, movement will result in the dissemination of sepsis into culs-de-sac of the joint and extra-articular muscle planes.

Active movement of the joint will be begun soon after it has been operated upon, and is regulated under the supervision of the surgeon in charge or his assistant. The rationale of the procedure may advisedly be explained to the patient, who, realizing what is required, will usually lend his full coöperation. Still more will he do this when experience shows him that movements actually alleviate pain, coincident with the visible escape of pus from the joint. Active movements of not only the knee-joint but also the ankle are advisable, for the resulting contractions of the leg muscles will hasten the venous flow, thus diminishing capillary stasis, as evidenced by the absence of edema of the foot.

To sum up, the advantages to be derived from treatment by early active mobilization appear to be five, its effects being:

To hasten repair by the preservation of a good blood-supply to the tissues of the affected joint.

To aid drainage, as Willems has emphasized.

To prevent extreme atrophy of the muscles, so that these will be better able to resume function when the articular inflammation is at an end.

To establish a process of autovaccination.

To realize the possibility of a subsequently mobile joint.

On the other hand, experience has shown that the treatment is not advisable in cases

with gross injury to the articular bone or essential tendons or ligaments; or where suppuration in the joint has gone on for sixteen days or more.

The synovial fluid in the knee-joint is of such importance in the method of treatment the author is advocating that it is worth while to discuss its nature and modes of reaction to infection in detail.

As to bacterial invasion, in 70 to 80 per cent of the cases of penetrating wounds of the knee-joint, this fluid at the original operation shows that "soiling" has occurred. In most it is not possible to see and recognize organisms in it; only on cultural examination can their presence be determined.

Where the "toilet operation" has been successful, these organisms disappear. Subsequent effusion, should it occur, is found to be sterile.

Where the "toilet operation" has failed, as rendered apparent by the persistence or recurrence of the clinical signs of inflammation more than four days after operation, bacteriological examination reveals organisms in profusion by both direct and cultural methods.

According to Sacquepee (quoted by Gosset), in the first few days after joint penetration the number of visible germs in the articular effusion is appreciably less than in wounds of bone or muscle. It is even the rule that in the first twenty-four hours direct examination reveals no organisms. Cultures, however, demonstrate their presence even when the examination is practiced very soon after the wound. Where circumstances permit of further examinations, it is almost always found that there is a multiplication in germs up to about the sixth day, when symptoms of infection begin to arise.

As to the cellular elements at the original operation the identification of cells typical of inflammation is generally prevented by the presence of red and white blood-cells resulting from a hemorrhage into the joint.

In the absence of such a hemorrhage, a preponderance of leucocytes is not pathognomonic of severe septic infection of the joint.

A differential leucocyte count affords evidence in determination of infection. An 80-per-cent polynuclear count marks roughly the dividing line between good and bad prognosis (Lazarus Barlow).

The presence of extracellular organisms and the absence of phagocytosis, when suppuration has lasted for ten days, point to a severe infection and limitation of powers of resistance. Too much reliance, however, should not be put upon this observation.

The following changes in the nature of the fluid escaping from a joint, during the progress of suppurative arthritis, to a certain extent reflect the clinical evolution of the intra-articular inflammation. Three stages may be recognized:

A. (1) Developing. (*a*) Synovial fluid discolored by altered blood; (*b*) albuminous fluid like coagulating white of egg. (2) Seropurulent fluid. B. Established suppuration. (3) Pus. (*a*) Thick and creamy in staphylococcal infection; (*b*) thinner and less viscid in streptococcal infection. C. Subsidence. (4) Pus with semisolid curds. (5) Curds floating in a clearer fluid. (6) Synovia, clear and limpid.

The appearance of the last two types of escaping fluid is valuable as evidence of resolution of intra-articular inflammation. Histologically, the last reveals few polymorphonuclear cells, and as a rule no extracellular organisms, the few bacteria present being intracellular.

At this stage, should large open wounds be present with healthy vascular granulations, and if no pus is apparent, either as a secretion of the granulating surface or escaping from a sinus leading to necrosed bone, it is safe to carry out partial or complete secondary suture. This step is advisable, for dense cicatrices, which are subsequently of considerable inconvenience, may best be avoided by early suture.

A joint subjected to an irritant, whether mechanical, chemical, or bacterial, reacts by an inflammation of the synovial membrane and the outpouring of an excess of synovial fluid into the articular cavity. In which articular components do the germicidal properties chiefly reside? The only

three tissues which can supply this protection are: (1) The synovial membrane; (2) the synovial fluid; (3) the cartilage (either the menisci or that clothing the bone).

On account of the avascularity of the third, only limited powers of resistance can be ascribed to this structure. The synovial membrane, on account of its good blood-supply, should be competent to protect itself.

The most valuable germicidal agent of the joint must be the synovial fluid. This, after all, is but slightly altered from blood plasma, and no doubt is endowed with all the protective qualities which the blood itself possesses. We should expect to find that the protective value of it would vary directly as the supply of freshly oxygenated blood. The supply is largely governed by muscular action involved in active movements.

In the 20 to 30 per cent of failures, where the mass-action of infection has been too great, and clinical "sepsis" as distinguished from "soiling" has occurred, the aim of subsequent treatment will be: (1) To insure a free outlet for synovia; (2) to preserve the best possible blood-supply to the joint structures; and, as a corollary, (3) thereby to provide a supply of the healthiest synovial fluid—that is, synovia best equipped with vigorous phagocytes and antibodies.

The stereotyped vertical parapatellar incisions commonly used for drainage of the knee-joint have the following drawbacks:

Wide gaping of the skin owing to the run of the natural lines of cleavage in this situation. The result is wounds taking long to heal, and ultimately leaving troublesome cicatrices.

Joint openings which tend to close early, since the split muscle and tendinous fibers forming the capsule fall together spontaneously.

Interference with the blood-supply of the patella, since the main vessels, which pass transversely inward, are divided by these incisions.

Troublesome hemorrhage either at the time of the operation or some hours later. The bleeding vessels shrink away into fibrous tissue when cut, and are difficult to secure.

Should amputation subsequently become necessary, the anterior flap is interfered with.

The bleeding vessels shrink away into which remain open satisfactorily, and where active mobilization is employed appear to drain the joint just as efficiently as the vertical incisions. They are made from the outer and inner borders of the patella, commencing at the junction of the upper and middle thirds of the bone, and continuing for a distance backward of about an inch and a half. These incisions are far removed from the lateral ligaments, which lie below and behind them. The outer incision partially divides the iliotibial band.

All structures down to and including the synovial membrane are divided in the line of the skin incisions. As a final step, the cut edges of the synovial membrane are stitched to the cut edges of the skin by a series of suspension sutures. A single layer of rubber tissue is inserted between the lips, and left *in situ* for twenty-four hours, to prevent the closure of these openings by adhering blood-clot.

If the muscles of the thigh are unusually well developed and do not retract sufficiently to leave adequate joint openings, an elliptical segment is excised on either side.

To persuade a patient suffering from an early suppurative arthritis of the knee to carry out active movement is, in practice, by no means easy. He is ill, weak from fever and possibly from loss of blood; and, moreover, his joint is excessively painful. Without some help he will be able to do little or nothing. He cannot raise his leg off the bed, far less bend and straighten the knee. For these reasons he may require a hinged splint with a counter-poise system.

All that is really essential is four pulleys attached somehow above the leg. These transmit four cords, two of which are attached just above and two just below the hinges of the splint. At their other ends are fixed counterweights (sandbags, etc.).

These are not quite heavy enough to suspend the leg in the air; they merely serve to overcome most of the force of gravity. With this arrangement the patient's limited energy may be economically spent on movements at the knee, and not wasted on the purposeless act of lifting the leg from the bed.

Active movements are at first carried out under the observation of the surgeon or his trained assistants. The splint is fixed by reapplying the screw adjuster at all times when jars, twists, or strains might occur, such as during sleep, nursing procedures, etc. Experience shows that normal movements of flexion and extension are singularly painless provided there is a free outlet for fluid from the joint, preventing any rise in intra-articular tension.

Patients soon become interested in the routine, and enjoy considerable relief of pain when the daily movements are carried out. In fact, they often ask that the splint may be released, in order to ease their discomfort by movement. Emphasis is again laid on the importance of movements of the foot. Active contractions of the muscles of the leg stimulate the flow of blood and prevent the occurrence of edema from venous stasis. Possibly, also, contractions of the gastrocnemii help to massage up pus from the posterior compartments of the knee-joint.

The physiological method, in order to be of service, must be instituted early. It is useless to commence it when all the joint structures are becoming disintegrated by septic processes, and especially when the cartilages are becoming eroded.

For this reason it is unwise to resort to the operation of arthrotomy, lavage, and closure, where signs of sepsis occur as late as a week after the date of the original wound or primary operation. It is wiser to avoid the waste of time incurred by this operation, which, more often than not, fails to arrest sepsis at so late a stage. Each day's delay renders the mobilization method less likely to succeed, and lessens the chance of obtaining a movable joint at the finish.

In the more virulent types of inflammation, and especially when it is associated with gross bone injury, movements toward the end of the third week may become restricted and painful. If this is not due to a collection of pus in the popliteal space, it is regarded as coinciding with erosion of the articular cartilages, and is the signal for the application of a rigid Thomas splint with extension, hope of a mobile knee being no longer entertained.

Not the least striking feature when this treatment is carried out is the satisfactory general condition these patients preserve. Their appetites remain good; they sleep well; take interest in their surroundings; and, in fact, present an entirely different picture from that which we were accustomed to see when treatment by immobilization was carried out.

Though the tendency to track is overcome, a localized abscess frequently occurs in the popliteal space. It is not quite clear whether this comes about by an extension through the back of the joint by way of the bursæ, or by a track superficial to the condyles. These abscesses occurred in 10 out of 23 cases treated by the physiological method.

The author in a table shows that about 50 per cent obtained a mobile knee. There were no deaths in the series, and the one amputation was necessary on account of intractable suppuration in the leg resultant upon ligature of the popliteal artery; the knee-joint, subsequent examination showed, had settled down completely. In each of these cases the knee-joint was definitely infected, and in one of the various stages of suppuration; not one was merely a "soiled" joint. It will be observed that in no instance where movements were commenced after the seventh day did a mobile joint result. Mobilization, however, in these cases undoubtedly served a useful purpose, and the end-results, though ankylosis occurred, were very good.

A practical difficulty lies in deciding upon the length of the period of probation, for in many cases of suppurative arthritis acute symptoms are not manifest until as late as the tenth day, and the fact that effu-

sion into the joint is occurring may escape notice by the leakage of synovial fluid into the depth of an open wound near the joint. Many coincident conditions may be factors in producing pyrexia, increased pulse-rate, and other symptoms of toxic absorption. In some cases—necessarily not included in the foregoing list—the local signs, the symptoms, and the withdrawal of a synovial fluid rich in polynuclear leucocytes have prompted the author to adopt the physiological method of treatment without delay, knowing that evidence of the existence of bacteria might require forty-eight hours to be reliable, the time necessary for incubation of organisms dilatory in growth on artificial culture media. In no case in which the pathologist's report was subsequently negative for bacteria did contamination of either the stomata or the interior of the opened joint occur, and progress to free mobility was unhindered.

THE TREATMENT OF SYPHILIS IN TUBERCULOUS PATIENTS.

ELLIOTT (*American Journal of Syphilis,* April, 1919) observed that it has been recognized for years that syphilis and tuberculosis are frequently found in the same individual. The number of recognized cases, however, has grown tremendously with the advent of the Wassermann reaction. At the same time internists have become more alert in their search for clinical evidence of the dual infection. The literature is full of data as to the incidence of tuberculosis among syphilitics. Opinions, however, vary widely as to the percentage of cases showing both infections. Tedeschi claims that 70 per cent of the cases of tuberculosis developing during a period of ten years in his prison service occurred on a luetic soil, while Letulle reports 19 per cent of 346 tuberculous inmates of Bouchiecaut Hospital had positive Wassermanns. Bronfenbrenner examined 193 syphilitics for tuberculosis with Besredka's tuberculous antigen and found that 83 cases, or 43 per cent, were positive. Fifty-five of these were clinically tuberculous, while 28 were not diagnosed. In order to make a comparison with these figures he then examined 432 non-syphilitics and found 100 cases, or 23.15 per cent, tuberculous. Thus, he concludes that tuberculosis is much more frequent among syphilitics than in non-syphilitics. This he attributes to the syphilis as such, or to antisyphilitic treatment markedly lowering the resistance of the patients so as to make them more susceptible to a new infection of tuberculosis, or rendering them less resistant against the progress of the disease previously contracted. The foregoing percentages are somewhat higher than those of the average hospital. Lyons examined 471 cases of tuberculosis and found that 6 per cent of these gave a positive Wassermann reaction. He does not state, however, how many of the negative cases showed evidence of syphilis upon examination.

Before the advent of salvarsan, mercury was the drug *par excellence* in the treatment of syphilis. Due to the fact that patients with both syphilis and tuberculosis showed improvement under mercurial treatment, a number of clinicians became overenthusiastic about the use of this drug in the treatment of tuberculosis. Even as recently as 1908 Wright reports a series of 65 supposedly uncomplicated cases of tuberculosis treated with succinimide of mercury injections, all of whom showed improvement. He also had 41 controls under the same hygienic treatment who did not receive mercury. The condition of these remained stationary. Previous to the institution of this form of therapy his death-rate had been 11.29 per cent, which was reduced to 4.76 per cent following the administration of the drug. Thus he concludes, after observing these patients for a few months, that mercury offers great hope as a therapeutic agent in the treatment of tuberculosis. In order to further test the therapeutic effect of mercury Hartz selected 14 cases of active tuberculosis to which he gave mercurial injections. Within one year 12 of these cases, or 85.7 per cent, died, while the other two had pulmonary

hemorrhage. He states that for a time some of them showed a temporary improvement. This he could not definitely attribute to the mercury, but rather to the hygienic treatment. Eventually all patients began to deteriorate almost in direct proportion to the amount of mercury received. Many other observers have had similar experience, and it is now generally conceded that mercury should be given with great care to the tuberculous individual.

Finally, realizing the dangers produced by mercury in the treatment of the dual infection, clinicians hailed the advent of salvarsan with great enthusiasm, and many optimistic results have been recorded from its use.

The author reports a series of cases, from which he concludes that one can justly assume that mercury should be used with great care in tuberculous patients; that the deleterious effect is not immediate, but appears several months after the institution of administration of the drug, as was pointed out by Hartz. Therefore, arsphenamine (salvarsan) seems to be the drug of choice in such cases, but should be given in small doses at long intervals, inasmuch as the ordinary dosage accentuates active foci and is prone to cause a flare-up in latent lesions.

THE X-RAY TREATMENT OF TUBERCULAR EPIDIDYMITIS AND ORCHITIS.

HYMAN (*Urologic and Cutaneous Review*, May, 1919) states that the majority of observers are of the opinion that the first structure infected is the epididymis, with secondary invasion of the vas, vesicles, and prostate. In early cases the testicle itself is free from disease, but in the later stages is almost always involved. Basing the indications for surgical treatment on these facts, the operation in favor for a number of years was orchidectomy; of late, however, epididymectomy has supplemented the latter operation. A smaller number of investigators are of the opinion that primarily the prostate and vesicles are first involved, and from here the disease spreads to the epididymis and testes. The minority group, therefore, advise a much more radical procedure, namely, excision of the entire genital tract —*i.e.*, vesiculotomy, vasectomy, and epididymectomy. When both testes are diseased there is always found prostatic and vesicular involvement.

In discussing the spread of testicular tuberculosis and the operative indications, the condition of the opposite testicle should always be considered. Unfortunately in a large percentage of instances, despite the nature of the process and its early surgical treatment, the disease has a tendency to involve the opposite or apparently healthy side. This statement is borne out by the statistics of a number of surgeons. Keys states that "relapse on the opposite side almost inevitably occurs." In a series of 87 cases reported, there were fifty-three relapses in the other epididymis, forty-six occurring within a year after operation of the primarily diseased organ. Barney states that "it is characteristic of the disease to attack the opposite epididymis in over half of the cases within a year or two after the time of involvement of the first side." To lessen chances of recurrence on the opposite side, it has been suggested to resect the healthy epididymis, or to ligate or remove a section of the vas on the normal side, at the time of the primary operation. The latter measure (*i.e.*, ligation or resection of the vas) has been found very successful in preventing infection of the healthy organ. After bilateral epididymectomy, it has been found that active tubercular lesions in the prostate and vesicles quiet down to such an extent as to give the impression of a clinical cure. Before resorting to such a radical procedure as bilaterial epididymectomy, the question of sterility is to be considered. The seminal fluid should be examined to determine the presence or absence of spermatozoa. Azoöspermia is very frequently encountered in this condition; should this be determined in a given case, a bilateral epididymectomy would be indicated. In unilateral epididymitis without prostatic or

vesicular involvment, with active spermatozoa present, a decidedly conservative view point should be taken concerning operation on the healthy vas and epididymis.

When there is slight involvement of the testicle, the process will most likely subside after epididymectomy. In the latter stages of the disease, when the tuberculosis has caused more extensive destruction of tissues with caseation and sinus formation, epididymectomy is contraindicated, and orchidectomy becomes the operation of choice. The problem is further complicated when both testes are involved, which is not infrequently the case. It is in the latter condition (with unilateral or bilateral testicular involvement) that the deep *x*-ray treatment is especially indicated, and should be of distinct service.

The question may be brought up as to the advisability of using the rays in early cases if good results can be obtained in later stages. If azoöspermia is present no harm can be done; if spermatozoa are present the rays should not be used, for the spermatogenic cells are always destroyed by such treatments, thus producing sterility.

Orchidectomy, while a simple procedure, is often fraught with danger. Bissel states that "the mere removal of one or both testicles is a comparatively simple and safe operation, but its effect upon the individual does not end with the operation and the discharge of the patient as cured. A number of hopeless mental diseases and some suicides have been reported as following the operation of double castration." These facts have been verified by other observers. Besides psychical effects, double castration causes marked physical changes which are too well known to require enumeration. These changes are due to a loss of the internal secretion of the testicle. This internal secretion, as has been shown, is a product of the interstitial cells. The great advantage of *x*-ray therapy is due to the fact that the rays, while destroying the spermatogenetic function, have no injurious effects upon the interstitial cells. Patients treated by this method are spared the evil effects, both psychical and physical, frequently seen following castration. Two cases are reported in which the results were excellent.

THE STATUS OF THE VESICAL SPHINCTER AFTER PROSTATECTOMY.

WATSON (*Surgery, Gynecology and Obstetrics,* June, 1919) from a study of the cases which he reports observes that following perineal prostatectomy the internal or vesical sphincter returns to its normal tone and function in every instance. This takes place within a few weeks as demonstrated by accompanying cystograms. From clinical observations the author is led to suspect an even earlier return of function judging from the establishment of definite intervals of urination a few days after prostatectomy has been performed by a perineal urethrotomy in the membranous urethra back of the internal sphincter, as it should be. Not infrequently urine is voided at three- and four-hour intervals at this period both through the urethra and through the urethrotomy wound, while during the intervening time the patient is perfectly dry. These rather long periods of complete continence could not occur under the above conditions if the vesical sphincter were not functioning normally.

One interesting case in which the vesical sphincter was found closed and functioning normally twenty months after operation, at an earlier examination fourteen months after operation was found to be dilated, with the posterior urethra funnel-shaped and virtually forming a part of the bladder cavity. During this time the patient had periods of incontinence, which, however, had entirely disappeared at his last examination. In referring to the operative note in this case it is seen that the operator states of the vesical orifice: "It lay very deep, the tip of the finger passing just within the internal sphincter. The margins of the orifice were grasped with clamps and the structure pulled down into the wound." This procedure undoubtedly injured the sphincter to a degree sufficient to account for the long delay in its restoration of func-

tion. It is of interest to note in this instance, however, that even after an interval of over a year there was complete recovery of functional and anatomical relationship.

WAR CONTRACTURES.

HURST (*British Journal of Surgery*, April, 1919) states that the diagnosis of a hysterical contracture depends primarily upon the incompatibility of the symptoms with the injury. On careful examination it is generally at once clear that the exact form and extent of the contracture and paralysis cannot possibly be explained by the injury inflicted upon the affected muscles, or upon the nerves which convey motor impulses to them from the central nervous system. In some cases an injury to a nerve appears to be responsible for some of the paralysis present, but it is often found that the paralysis extends to muscles supplied by other nerves which could not have been injured. Moreover, an injury to a nerve cannot account for persistent spasm of the muscles it supplies, and still less for that of other muscles; persistent muscular spasm resulting from injuries is thus invariably hysterical, unless the pyramidal tracts in the brain or spinal cord have been directly damaged. When a part of the condition is clearly hysterical, this should be cured, and an attempt made to cure the residual condition, however closely it may simulate the results of an organic lesion; for the latter is often perpetuated as hysteria, and recovery of function may take place before the disappearance of the accompanying physical signs of organic disease, such as extreme muscular atrophy, loss of reaction to faradism, and abolition of deep reflexes. Vasomotor and trophic changes, which have in the past been regarded as conclusive evidence of organic disease, may be the result of disuse from hysterical paralysis, and it is most important to recognize how impossible it is to distinguish by simple manipulation the stiffness of joints due to organic changes in the surrounding tissue from that due to local deficient circulation, quite apart from any associated muscular spasm, the degree of which should always be carefully investigated.

Hurst has almost entirely given up hypnotism in the treatment of hysterical conditions, as the results were uncertain. Suggestion with the aid of electricity is rarely employed, except at the commencement of treatment in some cases of flaccid paralysis, in which the contractions produced in the paralyzed muscles powerfully appeal to the patient's mind.

The method now begins with a full explanation of the cause of the symptoms in language suited to the patient's intelligence and degree of education, followed by persuasion and reëducation, combined in most cases with manipulation, which doubtless acts to some extent by suggestion. A very important, but by no means essential, preliminary is the creation of a proper atmosphere of cure. Directly the patient is admitted, the sister encourages him to believe that he will be cured as soon as the doctor has time to see him, and she is often helped by the spontaneous efforts of other patients in the ward, who have been rapidly cured of similar symptoms and tell him of their cure. The medical officer sees him some hours later, and after examining him and coming to the conclusion that the condition is hysterical, he tells him as a matter of course that he will be cured the next day. By the following morning the patient is fully convinced that the hoped-for cure will take place; as the medical officer is equally convinced that he will cure the patient, the two essentials for recovery are present. The nature of the actual treatment is really immaterial, but simple explanation, persuasion, and reëducation have the great advantage of making the patient take an active part in his own cure, and remove any suspicion of charlatanism from the proceedings.

The patient is made to understand that any treatment he has already received has prepared the way, so that nothing now remains but a properly directed effort on his part, with the physician's help, for complete recovery to take place. During the

whole course of treatment he is engaged in conversation, and the meaning of each successive step is carefully explained. He is made to watch the contraction of the muscles and the play of the tendons of the normal limb, and to attempt to imitate them in the affected one.

In some cases it is not even necessary to touch the patient, mere explanation and persuasion being sufficient to cause him to relax any spasm which may be present, and then to perform the various movements of the part with quickly increasing strength and rapidity. In other cases the limb requires to be lightly supported at first, but here again no passive movements are employed. In cases of this kind the patient often expresses astonishment at the simplicity of the treatment, which succeeds in curing him in a few minutes in spite of the fact that he has previously been given massage and electricity for months without any obvious result. The explanation is that now for the first time he is made to take an active part in the treatment—to use his will power, instead of allowing himself to become a passive agent in the hands of the masseuse. As a matter of fact neither electricity nor massage is of any use in these cases, although the average massage and electrotherapeutic department is crowded with them; for recovery should take place very rapidly, and then nothing but the ordinary activity of every-day life is required to restore any residual weakness due to the muscular atrophy caused by prolonged disuse. In many cases of severe contracture more active manipulation is required.

When very great difficulty is experienced in getting the contracted muscles to relax, the limb should be placed in very hot water, and the manipulations carried out when the circulation has been artificially improved in this way.

Ever when complete relaxation of spasm has been attained and the normal movements have been restored to a hand, the patient is very apt to forget this, and to continue to make the other hand do the work of both. After the condition has persisted for many months or even three or four years, it is only natural that this should be the case at first, if he does not think about it, as he has become so unaccustomed to having two useful hands. It is therefore of the greatest importance to give the patient some occupation, such as basket making or toy making, which will necessitate his using both hands from the very day on which recovery occurs.

Finally, the patient should be taught to keep the limb in the proper position by an effort of will in order to restore the normal postural tone and postural length of the muscles.

THE CORPUS LUTEUM IN ITS RELATION TO AMENORRHEA, STERILITY, ABORTION, AND PSEUDO EXTRA-UTERINE PREGNANCY.

OCHSNER (*Illinois Medical Journal*, May, 1919) says that in recent years some very interesting facts have been observed by veterinarians on the influence of the corpus luteum on sterility and abortion in the cow.

It has been observed, for instance, that if a false corpus luteum remains unabsorbed in either ovary of a cow she does not come in heat, a condition which corresponds to amenorrhea in woman, and so long as the cow does not come in heat she, of course, remains sterile. On the other hand, as soon as this false corpus luteum is absorbed normally or expressed manually by the operating hand of the veterinarian, the phenomenon known as heat develops within twenty-four hours. This observation has been made so many times by a sufficient number of highly trained, experienced veterinarians that in the minds of the veterinary fraternity it no longer is a debatable question.

Veterinary surgeons have also made another very important discovery. Sometimes in expressing what they consider a false corpus luteum, they have actually expressed or ruptured a true corpus luteum, in which instance one of two things has invariably happened: either the cow has bled to death in a very short time, or she has aborted within from twenty-four to thirty-six hours. This observation on the cow throws very interesting light on two somewhat obscure

problems in gynecologcal surgery, namely, the problem of abortion and the frequent finding of blood in the peritoneal cavity, which has been ascribed to ruptured extra-uterine pregnancy, but in which, on careful examination, no placental tissue has been found microscopically. The experience of veterinary surgeons led Ochsner to believe that abortions following abdominal traumas are caused by injuries to the true corpus luteum and not traumatism of the uterus itself, and that in operating upon a pregnant woman the important precaution is to avoid traumatism of the ovary containing the true corpus luteum, if one wishes to avoid interruption of pregnancy.

In recent years a considerable number of articles have been written emphasizing the fact that in many cases of supposed extra-uterine pregnancies, neither the fetus nor placental tissue can be found on the most careful search.

The observation of the veterinarians may explain why in such a large per cent of supposed extra-uterine pregnancies no placental tissue can be found microscopically, in that instead of these abdominal hemorrhages being caused by ruptured extra-uterine pregnancies they are really the result of a rupture of either the true or the false corpus luteum. If true corpus luteum, with resultant abortion and the finding of placental tissues in the scrapings of the uterus; if false corpus luteum, premature menstrual flow without placental tissue.

THE "PROVOCATIVE" WASSERMANN TEST.

POLLITZER and SPIEGEL (*American Journal of Syphilis,* April, 1919) state that the "provocative" test was made in about 150 cases of syphilis that had become Wassermann negative after treatment. For the most part an intravenous injection of 0.2 gramme arsphenamine was given and blood drawn for the Wassermann test on the following day and again at two days' interval for eight days, and twice during the succeeding week; indicating the day of the injection as day 0, the Wassermann specimens were taken on days 1, 3, 5, 7, 10, and 15. This rule was not followed invariably, but prevailed in certainly three-quarters of the cases. The Wassermann reactions were tested in the laboratory in one of the leading general hospitals of the city, where the work was under the supervision of a former pupil of Citron (Wassermann's assistant). The work of this laboratory may be regarded as at least as reliable as that of the average serologic laboratory. The antigen used was generally extract of guinea-pig's heart.

The authors' reasons for undertaking a series of these Wassermann tests in duplicate and in different laboratories lies at the very bottom of one of the great objections to the "provocative" test, namely, the unreliability of the Wassermann test *per se*. No one who has had a large experience with the Wassermann test, who has, so to speak, stood between the patient and the laboratory, correlating the clinical with the laboratory evidence in a large series of cases, would deny the great value of the Wassermann test for the clinician; but no one with any considerable experience would be willing to accept a single Wassermann report, in the absence of supporting clinical data, as conclusive evidence either for or against the presence of a syphilitic infection. Every clinician has again and again received Wassermann reports in obvious contradiction to the unquestionable evidence. One of the authors can point to at least a score of cases of untreated syphilis with florid eruptions in the secondary stage in which a laboratory reported the Wassermann reaction negative; and this not from one laboratory, the quality of whose work would thereby be greatly impugned, but from many laboratories in different parts of the country.

The Wassermann test is so subject to errors of various kinds that dependence on a single positive reaction in a series of tests is not justified.

In an uncured case a change from a negative to a positive reaction may happen to coincide with the "provocative" injection, and a positive found after the injection

may be the result of the normal increase in reagent without relation to the injection.

In a series of about 150 cases of treated syphilis of all kinds the authors did not find a single clear case of a provoked reaction; while the assumption of a cure in all these cases is obviously untenable.

In a series of cases temporarily negative, selected as probably not cured, the "provocative" test failed to indicate the presence of syphilis though the subsequent course of the cases proved that the syphilis was not cured.

They regard the "provocative" arsphenamine injection as a useless and often misleading procedure.

DIGESTION OF THE ESOPHAGUS AS A CAUSE OF POSTOPERATIVE HEMATEMESIS.

PRINGLE and TEACHER (*British Journal of Surgery*, April, 1919) state that in considering the subject of postoperative hematemesis, one must exclude those cases in which the symptom follows upon some direct surgical interference with the stomach itself, and also that class of patient who suffers from a gastric or duodenal ulcer at the time of undergoing an operation for some altogether different disease. In the latter case hemorrhage may begin from an old-established ulcer the existence of which has not been known, and which, in other instances, may perforate with disastrous results, should the accident not be recognized.

Apart from these cases, postoperative hematemesis is a symptom of great importance to the practical surgeon, and associated with serious danger to the patient. Fortunately it is not of frequent occurrence. Although the death cannot always be said to be brought about by the hemorrhage—as many of the patients are in a state of profound toxemia and the amount of blood vomited is frequently small—still there are cases on record in which large quantities have been vomited, which could only have hastened the fatal termination. On the other hand, those patients who recover after this symptom has developed do so only after passing through a period which is extremely critical for themselves, and not less anxious for those responsible for their treatment.

The hematemesis usually sets in early after the operation; but in one of the cases reported the patient vomited blood before the operation was carried out as well as afterwards—a fact of considerable importance in its bearing on this subject. In the majority of cases that have been recorded, the amount of blood vomited at one time has been small, and this is in accordance with the authors' personal experience of these cases. The fluid ejected is usually extremely acid, and those patients who are sufficiently conscious to be able to express themselves frequently complain of the scalding effect which it has upon the throat and lips.

Attention seems to have been directed to the subject in the first instance by Von Eiselsberg, who in 1899 reported the cases of seven patients, five of whom had undergone operations for hernia, and two for rectal carcinoma—all of them, however, involving the peritoneal cavity. In five of these cases hematemesis set in after operation, and three of them (hernia cases) recovered; of the other two, one (a hernia patient) died thirty-eight hours after operation, and at the post-mortem examination "recent gastric and duodenal ulcers" were found; the other patient (a rectal carcinoma) developed hematemesis on the second day and died on the ninth; at the post-mortem a "deep duodenal ulcer" was found which "appeared to be recent." In his remaining two cases no vomiting occurred at all, but both patients died; in one "about thirty gastric erosions" were found post mortem, while in the other case (a rectal carcinoma) "numerous recent hemorrhages were found in the gastric mucous membrane." In six of the seven cases either the omentum or the mesorectum had been ligated, and Eiselsberg considered the source of the bleeding might be explained by a retrograde thrombosis or embolism of gastric vessels from the stump of the

omentum or mesorectum, followed by necrosis and digestion of the area involved.

From the pathological side, the observation which first aroused interest in the subject was the following: In 1909, at the Western Infirmary, Glasgow, one of the authors performed a post-mortem examination for Sir Hector Cameron on the body of an extremely well-built, well-nourished youth, who had died about ten hours after operation on account of acute appendicitis. The patient was very ill, and the appendix was found to be gangrenous; but so far as the post-mortem appearances in the abdomen were concerned, a successful result might have been expected. The striking feature of the examination was destruction of the lower part of the esophagus, the presence of slate-colored fluid in the pleural sacs, congestion and hemorrhage in the lungs, and softening of their surface in the neighborhood of the esophagus. There were also air-bells in the surface of the lungs which suggested interstitial emphysema in the affected areas. The appearance suggested digestion of the esophagus and the adjacent parts. The stomach, in contrast with the esophagus, presented healthy characters, with only the slightest degree of post-mortem digestion.

It was felt strongly that these changes had occurred during life, and had been the cause of the fatal result. Nothing in the way of inflammatory reaction (which would have proved the *intra vitam* nature of the changes) was found, but the "emphysema" and hemorrhages were regarded as very suggestive. One of the later cases fills this gap in the evidence, and the authors also feel that too little weight was given at the time to the hemorrhages, which have now been observed in the substance of the esophagus and in the lungs in a number of cases, as proof of the vital nature of the digestion of the esophagus. Pneumonic consolidation in the neighboring surfaces of the lung has also been found, but uncertainty is felt as to the significance of this; in some cases it might be part of a hypostatic pneumonia.

Fifteen cases have now come to post-mortem examination in which the authors consider it most probable that digestion of the esophagus occurred during life. In all of these there was vomiting of brown or black material, or actual hematemesis. In 8 cases the condition in the esophagus was advanced—destruction and perforation; in 7 it was early. In 8 cases there was no digestion of the stomach; in 7 there was slight digestion of the stomach. In 9 of the cases there had been operations, and the authors had added 6 cases in which there had not been any operation, but in which there were similar changes in the esophagus. A number of cases of digestion of the esophagus were considered and omitted as being examples of post-mortem digestion.

SYPHILIS IN SENILITY.

As might well be expected, syphilis, as seen during the years of senility, presents a clinical picture differing from that seen in young adult life, depending upon the obvious factors of lowered resistance and on the visceral and cutaneous changes incident to old age.

Except for Sigmund, who insists upon the relatively benign course of the disease in the aged, all other observers are agreed that in late life it is apt to be more serious, not only in its local manifestations but also in complicating sequelæ.

According to Renault, who up to this time carefully reviewed all the reported cases, the primary phase of syphilis in senile individuals is characterized first by a period of primary incubation longer than that seen in the young, a slowness in the evolution of the chancre and its induration, and finally a persistence and slowness of resolution, far beyond that which occurs in younger individuals.

The secondary period in general is said to differ, first in resistance of local syphilides to treatment; the marked tendency to recurrence; the tendency to precocity of lesions of a gummatous type, and lastly the frequence of early nervous manifestations.

In Fournier's group of 27 cases, 9 had severe nervous manifestations.

A large percentage of syphilis in senile individuals belongs to the interesting group of accidental infections, and many of these cases for this reason are extragenital.

WILE (*American Journal of Syphilis,* April, 1919) describes the case of a man seventy-nine years old, who exhibited a period of primary incubation of four months. Three months later his generalized eruption appeared. The features of interest in this case were the extreme age of the patient and the acquisition of the disease by coitus; the long period of primary and secondary incubation; the occurrence of glaucoma, due to specific iritis with rapid subsidence on treatment; the associated early nervous involvement without apparent clinical symptoms.

SOME POINTS IN SURGERY OF THE EXTERNAL CARTOID ARTERY.

NICOLSON (*Surgery, Gynecology and Obstetrics,* July, 1919) states that in the first place, in any operation about the face or neck, in which hemorrhage may become a serious factor, ligation of the external carotid simplifies the work wonderfully. It does not prevent bleeding, but it makes it controllable without ligature by simply clamping points for a few minutes. Perhaps its principal usefulness is as a preliminary step in the removal of the upper and lower jaws. It should always be done under the same anesthesia, and not a few days before removal of the jaw, as has been recommended by some. In jaw cases, though hemorrhage is often very free for a short time, no ligature is required, even for the temporal or internal maxillary arteries. Ligation takes from the operation of removal of the jaw all its terrors, and makes it a procedure practically free from difficulty and danger. In removal of the gasserian ganglion, it has been pronounced by many as unnecessary and not helpful, and to this the author most respectfully disagrees. There are two factors in this operation fraught with serious hemorrhage: the scalp and the middle meningeal artery. Writers speak of the ease with which hemorrhage from a torn meningeal can be controlled by ligation or pressure, but tying the external carotid has been easier than tying the meningeal.

Carotid ligation before a ganglion operation disposes effectually of the meningeal as a cause of worry and danger. In removal of fibrous tumors in the back of the throat by throat surgeons, in which hemorrhage is such a serious factor, the author has done the ligation for them, and the tumors have been removed without difficulty and with little hemorrhage.

The anatomical relations from a surgical standpoint, while important, are easily handled. The bifurcation of the common carotid, in the majority of cases, is opposite the upper border of the thyroid cartilage, and in a series of operations in the author's hands has never been below that point. In many cases it is much above that landmark, even extending up under the angle of the jaw. In one case in which the bifurcation was normal on the right side, it was in the edge of the parotid gland on the left. In two cases no bifurcation was found, and in these the common carotid was tied. The relation of the carotids to each other is pretty constant, for it should always be remembered that the external carotid is nearest to the median line.

Perhaps the most embarrassing finding is the combined trunk of the facial and lingual veins crossing at right angles, and in many instances forming a very large vessel. Anatomically, the external carotid is a superficial vessel, and in thin necks it actually is so.

An opening of from one to one and a half inches, with its center opposite the upper border of the thyroid cartilage, is usually ample. The incision should go through the skin and platysma muscle. After the deep fascia has been opened, with the index-finger the way can be rapidly torn down to the vessel, without damaging any of the structures. We are often told

that the guide to the vessel is feeling the pulsation with the finger, but the rapid breathing of the patient makes this very unreliable. It is a useful thing to remember that the common carotid always has a bulbous swelling just as it bifurcates.

The vessel is recognized by its yellowish-white color. The author states that he does not find any distinct sheath at this point, though we are told to pick it up and open it. His rule is to pick his way down to the bare artery with a tissue forceps and the point of the finger. Should the trunk of the lingual and facial vein cover the artery extensively, it can be pulled out of the way with a hook or can be cut between forceps, and it should be tied at once.

The point of election with the author is the immediate crotch of the vessel, for thus no space is left in which thrombus can form.

A practical point of extreme value is to have the anesthetist place his finger upon the temporal artery, and the operator either cross or pull upon the ligature, to see that it stops the circulation in the temporal. Just enough force should be used to stop the circulation and bring the inner walls of the vessel together.

DROP-WRIST AFTER NERVE INJURY.

PENNELL (*British Medical Journal*, June 7, 1919) holds that in the majority of cases in which the musculospiral nerve has been severed as a result of gunshot wounds, the humerus has been fractured, often suppuration has supervened, and secondary nerve suture cannot be carried out for some months, even under the most favorable circumstances. In spite of vigorous massage, movements, and electrical treatment, the extensor muscles waste, and the chances of a hand and fingers which shall function as formerly is indeed small.

Most men would rather have a useful hand now than an extremely problematical perfect hand in two or three years' time. Nor does the operation of tendon transplantation performed relatively early preclude or prejudice the later performance of nerve suture.

It does not appear unjustifiable to perform tendon transplantation about the wrist at the same time as nerve suture of the musclospiral in the arm, for, by the active movements at the wrist and finger joints which follow the completion of the tendon transplantation, troublesome adhesions in the small joints of the fingers and wrist are prevented, and the forearm extensor musculature is kept in better condition for the reception of the newly formed neurons than by the most skilled massage. The contention that if tendon transplantation is performed in addition to nerve suture it will in some cases become unnecessary later, is more than balanced by the fact that, properly performed, it can do no harm after nerve regeneration has taken place, and the restoration of function to the paralyzed muscles will in all cases be expedited.

The theory and practice of tendon transplantation stands or falls on its results. The questions to be answered are: Will the hand be benefited by transplantation? Will it prohibit or prejudice later nerve suture should this become possible? Will the residual group of robbed muscles be so weakened as to diminish their utility to the vanishing point? The author believes that these questions can be satisfactorily answered, and a verdict given in favor of tendon transplantation when the following indications are present:

1. Severance with large loss of substance of the musculospiral nerve.

2. Severance of the musculospiral nerve with much bony injury and prolonged suppuration.

3. In cases in which very rapid and complete wasting of extensor muscles has supervened.

4. In all cases of division of the posterior interosseous nerve.

The indication for the last group is based on the fact that the nerve is exceedingly small, runs a very circuitous course, is difficult to find, and the fact that the carpal

extensors, extensor carpi radialis longior and ulnaris are nearly always spared. The extensor carpi radialis longior and supinator longus being supplied by the musculospiral before its division into radial and posterior interosseous can be utilized as an extensor of the thumb and fingers.

The commonest type of posterior interosseous paralysis is that due to severance of the nerve just below the midpoint of the forearm, resulting in paralysis of the extensor ossis metacarpi pollicis, extensor brevi, and longus pollicis, and the whole or part of the common extensors of the fingers; more commonly this is partial, and the power of one or two fingers survives. These cases do exceedingly well with tendon anastomosis. The supinator longus, detached at its insertion, can be anastomosed with the extensor ossis metacarpi pollicis, and the extensor carpi radialis longior with the common digital extensors, or the extensor longus pollicis if the finger extensors are spared. In these (partial) cases it will be seen that whereas tendon anastomosis materially improves the hand within a few weeks, it does not, *a priori*, prejudice the further performance of posterior interosseous suture, were one skilful or rash enough to attempt it later.

The complete drop-wrist from musculospiral paralysis presents a more serious and difficult problem. This disabling condition is primarily due to the hyperflexion at the wrist-joint. Even in the normal hand the flexor muscles of the fingers cannot exert their maximum power unless there is a moderate degree of extension at the wrist-joint. When the normal hand is voluntarily placed in the attitude adopted by the drop-wrist of musculospiral paralysis, it is found that the fingers cannot be clenched—indeed, they cannot be fully flexed on the palm. Much more marked, then, is the condition in the flaccid paralysis of drop-wrist. In other words, the drop-wrist (or normal hand in this position) cannot make a "fist."

It behooves us, therefore, first to correct this hyperflexion of the wrist-joint and allow full play to the digital flexors. A patient with a wrist ankylosed in line with the forearm, with free finger movements, is in a better condition to make the fullest use of his fingers than one with a drop-wrist. The author says he does not think this point is sufficiently appreciated by English surgeons. Continental surgeons have, however, recognized this, and carried out fixation of the wrist-joint by means of an artificial ligament manufactured out of fascia lata. The drop-wrist has not been cured—that is, return of power of extension—but a permanently slightly extended wrist has resulted, allowing full play to the flexors of fingers and thumb, which later can be abducted by its shorter abductor.

In these cases a facial graft can be manufactured to act as a ligament permanently extending the wrist. It is attached to the third or fourth metacarpal distally and to the radius or ulna proximally, slightly nearer the upper extremity than the lower. If this is done, the flexor carpi radialis can be utilized for anastomosis with the extensor communis digitorum by passing its tendon through an aperture in the interosseous membrane, or better still, the pronator quadratus, as there is less likelihood of the formation of adhesions with the tendon passing through muscle than through interosseous membrane. The palmaris longus can easily be anastomosed with the extensor ossis metacarpi pollicis, and a very fair amount of abduction of the thumb results.

When the essential fact is fully realized that it is the acute flexion of the wrist which is so disabling in musculospiral paralysis, the cases of this complaint will rapidly become fewer. There should be no excuse for a drop-wrist to-day. If the wrist be fixed in slight extension by any of the above methods, the "uselessness" of the hand will largely disappear, even if nothing more is done to promote active extension of the fingers. The fingers, indeed, will largely settle this question for themselves, and will, to a certain extent, become "passively" extended by the "rebound" on the inhibition of their flexor impulse.

REVIEWS.

MILK. By Paul Heineman, Ph.D. Illustrated. W. B. Saunders Company, Philadelphia, 1919. Price $6.

This book, having about as brief a title as can be given, is nevertheless an exhaustive contribution to the subject, covering nearly 700 pages, prepared by the Director of the Laboratories of the United States Standard Serum Company of Woodworth, Wis. It is copiously illustrated and deals with the subject of milk both in regard to the physiology of its formation, its physical properties, its chemistry, the method for its examination, its adulteration, milk-borne diseases, preparations made from milk, and last of all consideration of all forms of milk which are commonly used in different portions of the world as a food. Much attention is given to the stables for milch cows and the details which should be carried out to insure cleanliness. It is a book which every veterinary surgeon should possess, and is a mine of information for those who want to look up any topic connected with this important form of food.

THE DON QUIXOTE OF PSYCHIATRY. By Victor Robinson, M.D. The Historico-Medical Press, New York, 1919. Price $2.

Dr. Robinson is well known as the author of a number of books dealing with various themes, and some of our readers doubtless are familiar with his most important contribution, namely, "Pathfinders in Medicine," biographical sketches of those who have made their mark in the history of our profession.

This book scarcely gives by its title an idea of its contents. It is rather a biographical sketch of some neurologists and psychiatrists, and occasionally passes from these lines of special medicine to those who have been prominent in other lines. Elbert Hubbard, it will be recalled, once wrote a book entitled "Little Journeys to the Homes of Famous Men," and this book might have received a similar title with the word "medical" introduced. As a matter of fact it is a record of the travels of Dr. Clevenger of Chicago. In Philadelphia Dr. Clevenger, the hero of the book, seems to have taken much pleasure in his visit to Joseph Leidy, the great naturalist and anatomist, of whose life he writes *in extenso*. A good picture of Leidy is appended to this portion of the chapter, and a very large part of the text is devoted to other medical men in Philadelphia; notably Pepper, Mills, and the naturalist, Cope. Apparently the visitor was more favorably impressed by those that he met in Philadelphia than by those that he met in New York. He recognized the brilliancy of Spitzka and the peculiarities of Hammond. Those who read the book will find that as a matter of fact the Don Quixote of psychiatry is a term applied to Dr. Clevenger.

PSYCHOSES OF THE WAR. Including Neurasthenia and Shell-shock. By H. C. Marr, Lt.-Col., R.A.M.C., M.D. Oxford University Press, New York, 1919.

As the author says in his preface the psychoses of the war have shown no new mental trait. nevertheless it has rendered many who were able to play a useful part in life less useful and in come instances incapable. The design of this book is to study this class of patients. It begins with a consideration of the border-land of mental disease, a theme which might take many pages but which the author covers in a single paragraph. He then briefly discusses normal and abnormal obsessions. He deals briefly with the simulation of mental affections, malingering, and feigned insanity. This first chapter consumes only one page. There are chapters dealing with the psychopathies, with particular reference to shell-shock and neurasthenia and their treatment. There are other chapters upon infantile mental deficiency, adolescent mental enfeeblement, confusional insanities, organic psychoses, and finally an appendix on the nature and method of examining the cerebrospinal fluid. There are also directions as to the methods which should

be followed in case-taking in patients with mental symptoms.

A considerable portion of the book deals with matters which can scarcely be considered germane to the psychoses of war, although it may be well said by the author that a consideration of the general problems of mental deficiency is a proper prelude to a study of the changes in mentality which war induces.

RATIONAL THERAPY. By Otto Lerch, A.M., Ph.D., M.D. Southworth Company, Troy, N. Y.

This book of more than 500 pages is said by the author to be based upon the belief that "blood alone cures" and that all methods used to treat diseases must serve to purify it and bring it where it is needed. We fear that a large number of the medical profession will fail to agree with Dr. Lerch, at least in following him as far as he would lead us in regard to this theory. When they turn, however, to the text of his contribution to medical literature they will find that there are twelve chapters which deal with all those agents which every physician believes to be advantageous to health if properly utilized, such as fresh air and sunshine, diet, rest, massage and exercise, hydrotherapy, electrotherapy, psychotherapy, local hyperemia, vaccine and serum therapy, organotherapy and chemotherapy.

The reader must have gathered that this is not a book which is intended as a textbook for students. It is rather an essay designed not only to advance the views of the author, but also to tell his fellow practitioners how they may employ remedial agents.

Under the chapter on Chemotherapy we notice that the author applies this term to a very much larger class of drugs than is commonly included, for he considers strychnine, opium, cannabis indica, and cocaine amongst others. He is without doubt perfectly correct in expressing the view that digitalis acts by reëstablishing circulatory equilibrium.

The book is printed in large type, on good paper, and special attention is called by the author at its beginning to a number of errors which have crept into the text through difficulties which exist in nearly all printing offices at the present time.

ROENTGEN INTERPRETATION. A Manual for Students and Practitioners. By George W. Holmes, M.D., and Howard E. Ruggles, M.D. Illustrated. Lea & Febiger, Philadelphia, 1919. Price $2.75.

The authors have prepared this small manual with the hope that it will prove a practical aid to those in search of a working knowledge of *x*-ray interpretation. The copious illustrations have been chosen as types of lesions or as momentary phases of constantly changing processes, and the authors wisely point out that the beginner should not attempt to make diagnoses from these plates by comparison with his own plates. They also wisely emphasize the necessity of medical training both anatomical and pathological as a prerequisite to success in this field, and it is manifestly essential that he who works with the *x*-rays must be as familiar with the appearance of normal tissues under varying conditions as he is familiar with changes which are produced by disease. A good many bibliographical references are given throughout the volume and the reader is urged to turn to these references when he needs more information than so brief a text can possibly give.

We presume that this volume will not prove of great interest to those who have a large experience in this branch of medical diagnosis, but it certainly will be a most advantageous purchase for those who are beginning to work along these lines.

THE PITUITARY. By W. Blair Bell. William Wood & Co., New York, 1919. Price $7.50.

This book is a study of the morphology, physiology, pathology, and surgical treatment of the pituitary, together with an account of the therapeutic uses of the extracts made from this organ. The author is a resident of Liverpool, and in his preface calls attention to the assistance which has been given him in the study of this im-

portant special subject by numerous other workers in this field. At the foot of almost every page several references are given in the literature of the world which deal with the matters there discussed. There are a number of illustrations taken from patients and from pathological specimens and cross-sections representing microscopical examinations.

The two American surgeons who have made noteworthy advances in the surgery of the pituitary, Cushing and Frazier, are given full credit for their work, and not only are the fields and methods of operation shown, but details are given as to the instruments which are employed.

The volume is a scholarly contribution to an important subject, and every one who is interested—and who is not?—will be glad to read it.

War Neuroses and Shell Shock. By F. W. Mott, M.D., LL.D., F.R.S., F.R.C.P. Oxford University Press, London and New York, 1919. Price $6.50.

Dr. Mott is well known the world over as a neurologist, and he has embodied in this book of a little over 300 pages the results which he obtained by himself or in association with others during the period of the world war.

He gracefully dedicates the volume to the group of American medical officers who worked with him, as a friendly mark of appreciation of their earnestness and efficiency in the study and treatment of cases of war neuroses.

The book begins with a brief preface by Dr. Christopher Addison, the Minister of Reconstruction. One of the most interesting points which we meet with in the book is the statement that cases of war neuroses are practically never associated with external or somatic wounds. In the vast majority the condition arises in soldiers who have had a neuropathic or psychopathic tendency, hereditary or acquired.

The book is illustrated by a large number of microscopic sections and photographs, and much evidence is shown as to the value of psychotherapy in the type of cases which is discussed. Altogether there are 78 illustrations in the text, 3 colored plates, and 15 diagrams showing the distribution of motor and sensory nerves.

Pulmonary Tuberculosis. By Maurice Fishberg, M.D. Second edition, revised and enlarged; illustrated. Lea & Febiger, Philadelphia, 1919. Price $6.50.

When Dr. Fishberg's excellent book first appeared we took pleasure in calling attention to it. It is an exhaustive volume covering nearly 750 pages, and deals with every phase in the diagnosis and treatment of this infection as it affects the lungs and contiguous tissues. The treatment outlined is based largely upon the author's personal experience in New York City. In some instances the patients lived in the most congested and unhealthy neighborhoods; the large proportion were, however, treated at least at one time in sanatoria. In the present edition every chapter has been revised, several additional plates have been inserted, and the book stands, as it always has stood, as a monument to the industry and thoroughness of its author.

Trench Fever: A Louse-borne Disease. By Major W. Byam, R.A.M.C.; Captain J. H. Carroll, U.S.M.R.C.; J. H. Churchill, R.A.M.C.; Lyn Dimond, R.A.M.C.; V. E. Sorapure, R.A.M.C.; R. M. Wilson, R.A.M.C., and Ll. Lloyd, R.A.M.C. With an introduction by Sir T. H. Goodwin, K.C.B., Director-General of the British Army Medical Service, a Foreword by Major-General Sir David Bruce, and a summary of the report of the American Trench Fever Commission by Lt. R. H. Vercoe, R.A.M.C. Oxford University Press, London and New York, 1919. Price $4.25.

This subject, which does not possess the importance to-day that it possessed during the progress of the war, is one which should be very thoroughly understood in the event of future wars. Every opportunity should be utilized for gathering together all the information possible while trench fever can still be studied and while the facts concerning it are still fresh in the minds of those who have had the largest experience in its diagnosis and treatment. The chief burden of the book is the claim that trench fever

is transmitted by the louse, but the authors admit that the parasite which is directly responsible has not been isolated. This subject is still one for investigation.

The book is illustrated by numerous charts showing the fever curves in patients, and clear descriptions are given as to the symptomatology of the disease, the susceptibility of individuals, and the experiments which have been made to determine the means of transmission.

THE NERVOUS HEART: ITS NATURE, CAUSATION, PROGNOSIS, AND TREATMENT. By R. M. Wilson, Captain, R.A.M.C., and John H. Carroll, Major, M.C., U.S.A. Oxford University Press, London and New York, 1919. Price $2.50.

We are told in the preface that this book is an attempt to review the problems of heart disease, and especially functional heart disease, from a new angle, that of the nervous system. It deals with the mechanism of the emotions, the principle of compensation, the genesis of functional heart disease, the graphic study of function in heart disease, breathlessness, giddiness, precordial pain, and all those conditions which one has grown to associate with neuroses affecting the circulatory apparatus. The text covers 136 pages, widely spaced, and in large type, and is an essay on the subject rather than an exhaustive contribution to its literature.

THE INTERNATIONAL MEDICAL ANNUAL. A Year Book of Treatment and Practitioners' Index. William Wood & Company, New York, 1919. Price $5.

Year after year we have noticed the appearance of this excellent summary of medical literature. The present volume opens with an introduction by the editor, laying emphasis upon the more important problems which are discussed in its pages. There is a special article on blood transfusion by Dr. Short of Bristol, England, showing the different methods which are employed. The book is freely illustrated and fully maintains the standard of the previous issues in this its 37th appearance. So far as we are able to discover there are only two American contributors, Dr. Hunt of New York and Dr. Andrews of Chicago; the other contributors being British.

A TEXT-BOOK OF UROLOGY IN MEN, WOMEN, AND CHILDREN. By Victor Cox Pedersen, A.M., M.D., F.A.C.S. Illustrated. Lea & Febiger, Philadelphia and New York, 1919. Price $7.00.

The author states that this work is planned on a rather uniform discussion of the clinical aspects of the diseases included for the benefit of students and general practitioners, who being not widely familiar with the subjects will be served by a fixed view-point. He further states that the stages of incubation, invasion, establishment and termination are described, so that the student receives a word-picture of the important affections and learns the course and prognosis not as afterthoughts, but as integral elements of the various cases.

Under Diagnosis is included a fairly full chapter on hematology, which must be regarded as including accurate tests of renal function. Special stress is laid on physical treatment, in which the author seems to have an abiding belief. In each disease there are paragraphs devoted to the standard of cure, so that the student, or general practitioner, will understand exactly what degree of relief should be reached before the patient is discharged from treatment.

In accordance with the arrangement of subjects Gonorrheal Urethritis is considered with its sequels in the first seven chapters. Thereafter there is a chapter on the General Principles of Diagnosis, another upon The General Principles of Treatment, followed by Gonorrheal Infection in the Female, the Complications and Sequels. Thereafter come chapters on Urethroscopy, Cystoscopy, The Bladder, The Ureters and Renal Functional Tests, Acute and Chronic Suppurative Inflammations of the Renal Pelvis and Parenchyma, and Diseases of the Prostate.

In the arrangement and subject-matter, the clarity of description, and soundness of treatment advised, the book is thoroughly to be commended.

CORRESPONDENCE.

AN INTERESTING INJURY OF THE EYE.

To the Editors of the THERAPEUTIC GAZETTE.

SIRS: I have recently had in charge a most unusual case of severe eye injury that has interested me greatly. I am reporting it thinking others will be interested, on account of the severity of the injury, the damage to the vulnerable mechanism of the eye, and the phenomenal degree of repair. On August 5, 1919, while attempting to turn on an oxyacetylene gas tank, there was an explosion. The dial of the indicator blew out, throwing the broken fragments of the glass dial directly into the face of Mr. S., who was standing in front of the dial, facing it at a slight angle at a distance of about two feet. The right forehead, temple, and molar regions had dozens of cuts, all shapes and sizes, the largest being about one and a half inches on the right supraorbital arch. The lower one-third of belly of right biceps was cut by a piece of brass tubing striking the arm at an angle. This I closed by a series of end-to-end sutures. On seeing the patient his first remark was, "Doctor, my eye is gone." On glancing at the closed eye I could not but concur in the statement of the patient. The orbit was badly shrunken. I instilled several drops of a 4-per-cent solution of cocaine into the eye, and after waiting a sufficient length of time proceeded to thoroughly examine the organ. The right globe had a cut five-eighths of an inch long on the nasal side extending anteroposteriorly from just anterior to the sclerocorneal junction backward in a straight line five-eighths of an inch. The anterior chamber contained quite a bit of blood, considerable of the vitreous had been lost, and the globe was badly shrunken.

On examining the interior of the posterior chamber I located a piece of glass, which on extraction proved to be triangular, one-quarter inch on borders. Further examination located another fragment, which when removed was ½ x ¼ inch. There was considerable protrusion of the iris through the wound. This I reduced by gentle manipulation and then sutured the ball. I applied continuous cold applications to the eye and bandaged both eyes, ordered him to bed in a dark room, and directed that the bowels be kept open by magnesium sulphate; the diet light, simple, and easily digested; no coffee, tea, or meat. I directed the instillation of a drop of a solution of atropine sulphate 4 grains to 1 ounce four times a day, also that if at any time he complained of pain in the eye to use hot fomentations of flaxseed over gauze. This promptly and invariably relieved the pain and permitted normal sleep. Twenty-four hours after the injury his temperature was 99°, and he expressed himself as comfortable. His appetite and excretory functions were at no time other than normal. After the first forty-eight hours I began the use of cantharidal blisters, using them on the temple, behind the ear, and on the molar process. This reduced the congestion wonderfully. I now directed the use of one drop of a 20-per-cent argyrol solution dropped into the eye four times a day and used it continuously, and am still using it also in the well eye. The eye is regularly irrigated with boracic acid solution at body temperature.

I put this man at once, immediately after injury, on fluid extract echinacea. He is still taking it. Ten days after the injury he could distinguish outlines of objects two feet from eye. He now, twenty days after injury, can recognize faces, count fingers, and promptly announce which finger is lowered and which replaced.

I consider this injury a very unique one: First, in that the wound was in the danger zone; second, the size of the fragments removed; third, the protrusion of the iris; fourth, the amount of vitreous lost; and last, the degree of repair and amount of vision.

According to the consensus of opinion of

men of great experience in this class of cases enucleation would seem to have been the modus operandi *par excellence*. The degree of damage was enormous, and the likelihood of sympathetic opththalmia not to be ignored. I decided to do the best I could to adjust the eye anatomically, hoping for a fair physiological function, and if the necessity should arise then I would enucleate. The result has vindicated my premises.

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Ripley, Ohio.

NOTES AND QUERIES.

"PTOMAINE POISONING."

Under this title the *Boston Medical and Surgical Journal* of July 17, 1919, expresses views with which we are in entire accord. It points out that it is a regrettable fact, yet none the less true, that in most cases when we are uncertain concerning a diagnosis we fall back on "blanket" terms such as "autointoxication," "sciatica," "disturbances of the automatic nervous system," and "ptomaine poisoning." Alvarez aptly points out that "fashions in this 'cloak of ignorance' change just as they do in wearing apparel." Further study of such diagnoses usually shows that many specific etiologic factors have been wrongly incorporated under one term. Particularly does this seem to be true in the case of "ptomaine poisoning."

Rosenau is firmly convinced that the diagnosis "ptomaine poisoning" is never justified, that it lacks precision, and that it is synonymous with uncertainty. It is pointed out that the word "ptomaine" was first used in 1873 by Selmi to designate certain products of putrefaction which, at that time, were included among the animal alkaloids; that since 1873 many attempts have been made to identify "ptomaines," the most recent definition being suggested by Vaughan, who described them as intermediate cleavage products of protein decomposition.

Split products of protein putrefaction are comparatively easy to isolate, and some of them, when injected parenterally, have been shown to be poisonous, but, so far, none of them have been demonstrated to be harmful when taken by the mouth. These products are usually isolated from food, which is in a state of putrefaction far past the edible stage, and in addition it should also be noted that chemists are rarely sure of their purity even when obtained in the crystalline form. Most of them are amins and are not poisonous at all, or at least no more so than their corresponding ammonio salts. For these reasons the chemical search for protein fractions as the cause of food poisoning has been almost abandoned.

Many outbreaks reported as "ptomaine poisoning" have been investigated in the Department of Preventive Medicine and Hygiene of the Harvard Medical School. In only a small residue of their cases have they found it impossible to demonstrate a definite etiologic factor, and in these cases the symptoms were very mild and transient. Among the ailments which were diagnosed "ptomaine poisoning" may be mentioned bacillary dysentery, oxalic acid poisoning, overdosage of potassium nitrate, food idiosyncrasies or anaphylactic reactions, heat exhaustion, food indiscretions, tartar emetic poisoning, uremia apparently due to neoplasm, nervous diarrhea, botulism, and various bacterial infections.

From these observations it must be perfectly clear that not only is the term "ptomaine poisoning" vague and indefinite, but, in addition, an actual misnomer. As suggested it would seem to be a great step forward if the profession would discontinue the use of the term and let the diagnosis stand as "gastroenteritis of unknown origin," much as the British use the term "Pyrexia of Unknown Origin" (P. U. O.) for fevers, the cause of which is undetermined.